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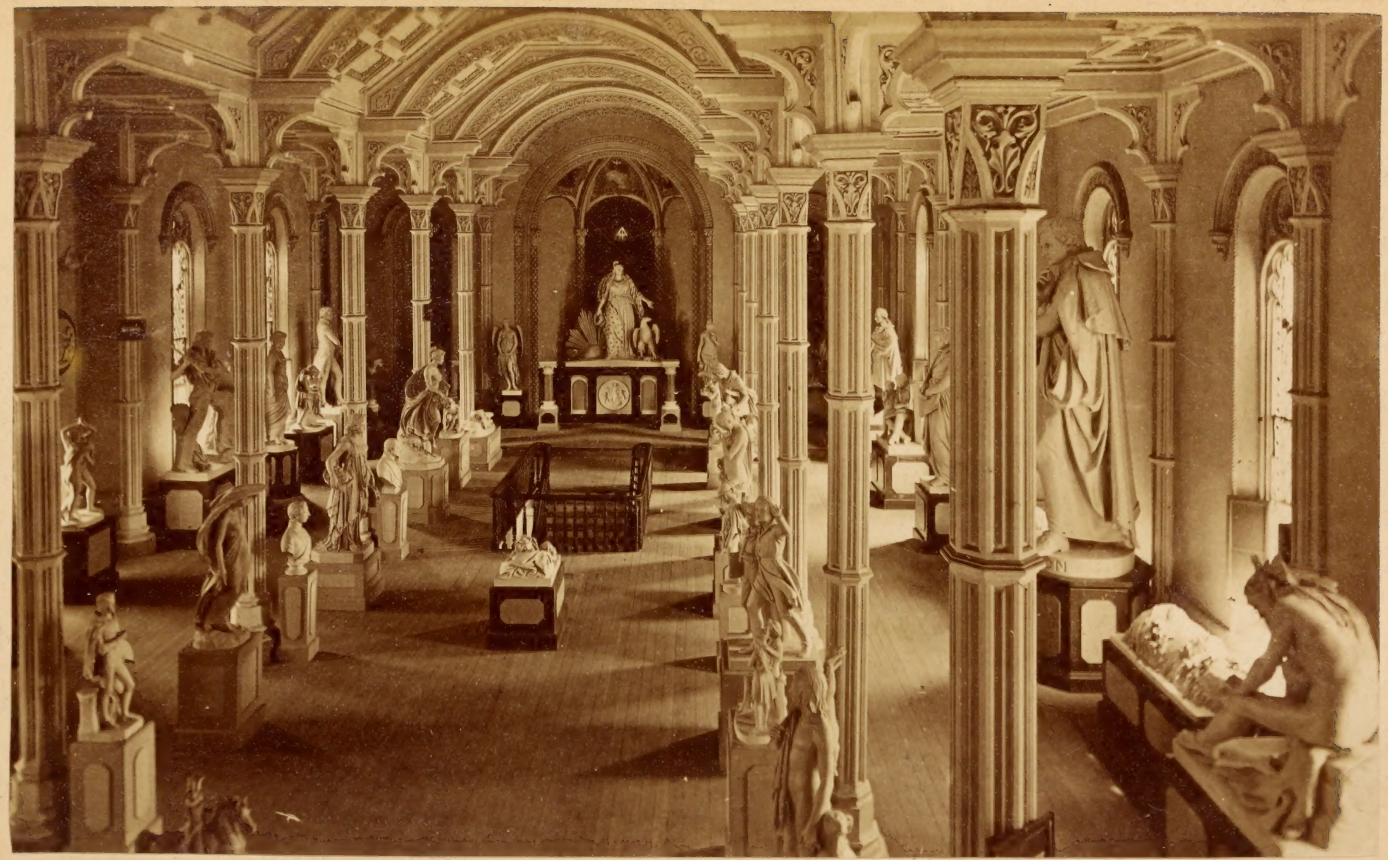

Rockwood Phot.

Sculptured Works of the late Thomas Crawford.

Mount St. Vincent, Central Park.

Dr Carlton
Mr Lyr. antique
Same as last
com finish

FIRST ANNUAL REPORT

OF THE

BOARD OF COMMISSIONERS

OF THE

Department of Public Parks

FOR THE

YEAR ENDING MAY 1, 1871.

NEW YORK:
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Acting Chief Landscape Gardener,
F. A. POLLARD.

Civil and Topographical Engineer,
W. H. GRANT.

Captain of Park Police,
N. R. MILLS.

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REPORT.

DEPARTMENT OF PUBLIC PARKS,
No. 265 Broadway, NEW YORK, May 1, 1871.

To the Hon. A. OAKEY HALL,
Mayor of the City of New York:

Pursuant to your requirement, the Department of Public Parks makes this its First Annual Report.

It is proper, at the outset, to trace, through the various laws on the subject, the powers, duties, and jurisdiction of the Department; and to present, in a digested form, all those parts of the laws which remain in force, and control or affect the Department as now organized, and which hitherto have not been presented in an analytical form for public consideration and official information. This analysis is now submitted in an appropriate appendix.

These laws vest in the Department a jurisdiction in the County of Westchester, which extends from the village of Yonkers to the Harlem river; and which, also, embraces the improvement of that river and all the public squares,

parks and places in the City of New York. In effect, the Central Park Commission — which had been a State organization and independent of the city government — and the Municipal Bureaus which related to the several Lands and Places, were consolidated, and this Department succeeds to all their powers.

The present Commissioners entered upon their duties on the 3d day of May, 1870.

OF ORGANIZATION.

The Commissioners, upon coming together, immediately proceeded to inquire into the system of organization of the late Central Park Commission, and with the methods by which the several works under the control of that body had been carried on. Upon investigation, it appeared that there were no rules or regulations controlling the various employees of the Board, except such as were declared from time to time by one of the members of that body, with a somewhat limited control exercised over him by the other Commissioners. Therefore the present Commissioners forthwith organized the Department into separate bureaus, assigning to each bureau specific work and duties, and confining its control to individuals selected with reference to their qualification for the particular work to be done.

THE BUREAUS.

The Department, accordingly, created seven bureaus, namely :

First. A Bureau of Accounts, the chief officer of which was denominated "The Comptroller of Accounts," to whose charge was intrusted all the accounts of the Department, the control of clerks employed therein, including a purchasing clerk, a paymaster, and also a property clerk.

Second. A Bureau of Construction and Repairs, the head of which was denominated "The Engineer-in-Chief," with the duty of directing and supervising all work to be done in the construction of buildings and improvements, and of making all necessary repairs thereto, under the direction and control of the Board. There are attached to this bureau experienced engineers and capable assistants.

Third. A Bureau of the Central Park. The head of this bureau is denominated "The Superintendent of the Central Park;" his duties consist in superintending that park and Mount Morris square, and the employees therein.

Fourth. A Bureau of Landscape Gardening, the head of which is denominated "The Chief Landscape Gardener;" whose duties consist in devising and preparing plans for ornamenting and embellishing the parks and places under the control of the Board, and, with the aid of assistants and skilled gardeners, carrying into effect the various plans proposed, and which may be approved and adopted by the Board.

Fifth. A Bureau of Public Squares and Places in the City of New York, the head of which is denominated "The Superintendent of Public Squares and Places;" whose duties

consist in superintending those squares and places, and the various employees connected therewith.

Sixth. A Bureau of Police, the head of which is "The Captain of Police;" whose duties consist in directing and controlling the park-keepers and gate-keepers. Attached to this bureau is a lieutenant, and a sufficient number of sergeants of police to assist the captain in the executive direction of its important affairs.

Seventh. A Bureau of Civil and Topographical Engineering, the chief officer of which is known as "The Civil and Topographical Engineer." This bureau contains four subdivisions: First, "the West-side Division," including all that part of the Island of New York extending from Fifty-ninth street west of Eighth avenue to the Harlem river, and Spuyten Duyvil creek; second, "the Harlem River Division," including that river and Spuyten Duyvil creek, and so far upon both sides thereof as may be necessary in carrying out any improvements in connection therewith; third, "the Westchester Division," including all the County of Westchester under the control of the Department, located north of the Harlem river and Spuyten Duyvil creek; fourth, "the East-side Division," including all that part of the Island of New York extending from Fifty-ninth street, east of Fifth avenue and of Eighth avenue, north of the Central Park, to the Harlem river. This bureau has charge within these limits of the surveying and laying out of all the streets, avenues, roads, and public squares and places, and establishing the grades thereof; also of the construction of all bridges, tun-

nels, and other means of communication between the counties of New York and Westchester, together with any improvement of Harlem river and Spuyten Duyvil creek, which by law is or may hereafter be directed to be carried into effect.

Additionally to this organization of bureaus, an "Architect-in-Chief" and a "Superintending Architect" were appointed, to supervise and superintend all the structures and buildings belonging to the Department.

OF CENTRAL PARK DRIVES.

The subject which next demanded attention from the present Board was the condition of the Drives and Rides in the Central Park. The roads required immediate care. They had been very much worn, and the water-ways on the sides needed to be reconstructed in order to adapt them to the then imperfect condition of the roadways, The roads were raised and gravelled to a proper height and the crown of the roads restored to its original state, All this involved much time and skilled labor. Before laying the gravel, there was removed the large quantity of protruding pebbles which had become firmly imbedded in the roadway, and gave a disagreeable roughness to its surface. This slow and tedious operation will not need to be repeated, inasmuch as the gravel now used is all properly screened. The bridle-paths, owing to numerous complaints that the gravel used upon them was mingled with large

pebble-stones, underwent careful reparation and were placed in a thorough condition for equestrian use.

OF CENTRAL PARK WALKS.

The walks in the Park had to a considerable degree been covered with the Fisk asphalt, which was found to be much out of order in many places, with numerous cracks and holes made by the weather, and many places where the paths, of earth or gravel, had been furrowed or washed away. These were repaired so far as was practicable at that time with the best pavement which could be procured, suitable for the purpose.

OF BOULEVARDS.

The West Side Boulevard had then been in process of construction for nearly two years, and no part of it had yet been opened. It was obviously important to have this road completed for public travel at the earliest day possible, because it furnished the only means of access from the upper to the lower end of the city for all the traffic of the Island. Directions were at once given to have all the force put on it that could be worked with advantage. In the month of September, free and uninterrupted travel was secured on that portion of the Boulevard roadway between the Circle at Fifty-ninth street and Seventy-first street, and on the first day of November, those portions of said roadway between Seventy-first street and Eighty-eighth street, and between One Hundred and Third

Central Park Museum, Observatory, and Menagerie.

street and One Hundred and Eighth street, were ordered opened for the public use, thus affording to the residents on the upper portion of the island facilities for access to the lower part of the city superior to anything that had been enjoyed at any time theretofore.

In addition to this Boulevard it was considered important to complete the Sixth and Seventh avenues, above One Hundred and Tenth street, so that access to the Park could be conveniently had from the upper portion of the Island. This work has been energetically prosecuted with the effect hereafter more particularly stated.

It was also considered advisable to pursue, with like vigor, the working of the Avenue St. Nicholas, then in part under contract, and which had progressed very slowly. Before the season closed, a road extending north from Break-neck Hill, had been made complete for all necessary purposes of travel, and needing only the finishing surface to render it perfect.

OF CENTRAL PARK STRUCTURES—THE ARSENAL.

The character and condition of the structures erected or in process of erection in the Central Park, by the late Commissioners, were next ascertained. It appeared from their reports that there had already been expended many millions of dollars upon the Park, in addition to the original cost of the land, and this Department found cast upon it the responsibility of assuming the control of the uncompleted structures within the Park in deciding upon the ex-

pediency and plans of which the present Commissioners had had no voice. Many buildings and several ornamental structures were in progress, but one great deficiency was apparent: there were in the Park no suitable accommodations for the Commissioners and officers of administration. The only building that could be adapted to that purpose even in part, was the Arsenal or Museum Building. A limited space of the first story of this was occupied by a number of clerks. A small part of the basement (damp and unsuitable as it was) was used by the Central Park Police. The whole building was offensively objectionable. Various animals were confined in the basement and on the first floor, with their cages in a state of great insecurity and danger. There had been no extra ventilation furnished to this building from the time it had been used as an Arsenal, and its unwholesome condition was apparent to sight and smell.

The second and third floors of this building were assigned to an exhibition of specimens of what was termed "Natural History," but the specimens had been wholly neglected, and the only parts that seemed "natural" were the hides, hair, and hoofs of the stuffed animals. Those on exhibition were simply grotesque distortions.

The third floor also contained boxes filled with the superb and extensive collection of the Museum of Natural History, which had been lying there for a long time; the contents of the boxes were believed to be in great danger of destruction unless speedy attention was given them.

The Trustees of the Museum urged the providing of accom-

AMERICAN MUSEUM OF NATURAL HISTORY.

(TEMPORARY BUILDING.)

modations adequate to those which the late Commissioners had agreed to give them, and which were necessary to make the exhibition of value. There was found upon the third floor one large glass case of peculiar structure and character, which was not regarded as at all fit for any purpose, much less for the requisites of the exhibition of specimens of natural history, placed at the disposal of the Department, but which the Trustees had declined to accept.

TERRACE AND ESPLANADE.

The next structures of prominence in the Central Park were the Terrace and Esplanade and Fountain at the Principal Lake. Beneath this terrace there was a floor and ceiling of ornamental tile, constructed with great care, and upon which, with the ceiling, had been expended over $50,000; and it was said that the gravel carried upon the tiling of the floor by the feet of visitors entering from the incompleted esplanade in front was destroying this expensive flooring. The space not yet paved was so large that to attempt tiling it in the manner projected by the original plan would, apart from its extravagant cost, entail great delay; indeed it could not properly be undertaken in view of the limited condition of the funds of the Department available for such purpose. It was therefore concluded to lay upon this gravelled esplanade an Asphalt Pavement. This was necessarily put down in the heat of summer, under great disadvantages, but it will probably answer all the purposes desired, for years. The fountain in

the esplanade was also in a bad condition: the centre of it, filled with *debris* and derricks, had been in an unfinished state for a long period. It had been used a short time and found to be so leaky as to be unfit for the purposes intended, and it had been apparently abandoned. The stone curb surrounding it had parted at the joints, and it was difficult to remedy this defect in the basin of the fountain so as to make it water-tight. It was put into proper condition without delay.

THE BELVEDERE.

The next most important structure in progress upon the Park may be considered that of the Belvedere, at the head of the Ramble and at the southwest corner of the Lower Reservoir—and designed in the Norman-Gothic style of architecture. Upon examination, it was obvious that it would be impossible to find any other locality in the Park that would entail greater expense in the construction of a building on the plan proposed than this point. Besides this, the design was very costly in itself, so much so that the propriety of going on with the work appeared questionable. The construction fund left unexpended, amounted, altogether, to about four hundred and fifty thousand dollars, and the completion of this work alone upon the plan proposed would have absorbed half of the entire amount. It was necessary, therefore, to eliminate from the plan every item of extravagance that could be avoided consistent with the then condition of the building. This was done, and

THE STABLE. CENTRAL PARK

after consulting the Architect-in-Chief, it was determined to omit the construction of one of the towers, the cost of which was estimated at fifty thousand dollars. In lieu of this a more economical structure was substituted, which is far better adapted for the purpose intended, and will be found quite as satisfactory to the public.

THE CONSERVATORY.

Another important structure was the Conservatory, at Seventy-second street, fronting on the Fifth avenue. The employees of the late Commissioners were at work upon it when this Department entered upon its duties. They were proceeding in accordance with a ground plan in their possession. Considering that such a building was necessary, the prosecution of work in accordance with this plan was directed, it being assumed that a general plan for the superstructure had been made to continue the work when the foundation should be erected to its proper height. It was soon discovered that, apart from a picture in the office of the Department, there was no plan existing for the superstructure.

STABLES.

There were also in course of construction the Stables on the transverse road at Eighty-sixth street. Their foundation had just been laid, and the principal work upon them remained to be done. The necessity for speedily completing this building was apparent to any one who visited the

miserable sheds and coverings in the Park where the horses belonging to it had been kept. It has been occupied for several months.

DAIRY-HOUSE.

The remaining structure in progress was the Dairy-house adjacent to the transverse road at Sixty-fifth street, in a very inappropriate location. It is hidden from direct view, is difficult of access, and no direct path leads to it from the main drive, so that the criticism is often popularly made that a Dairy Building intended for general use of persons frequenting the park, has been placed, as much as possible, out of sight and reach. Of course it was necessary to complete it according to the original plans, because it had progressed too far for alteration. It has been finished in accordance with the plans of those who conceived it. It may not, however, be uninteresting to know that this inconsiderable building has cost about fifty thousand dollars, nearly all of it expended before this Department took office.

THE PALEONTOLOGICAL ENTERPRIZE.

There was also at this time building an extensive foundation at the southwest end of the park upon the Eighth avenue side, and near Sixty-third street, intended for a building in which should be exhibited specimens of animals alleged to be of the pre-Adamite period, under the supervision of Professor Hawkins. The first inquiry being as to

the probable cost of the proposed building, the Department was informed that the foundation had already required the expenditure of thirty thousand dollars. The late Commissioners only possessed ground plans, together with an incomplete study for the exterior, or elevation of the proposed building. The character of the proposed interior was left to be conjectured, and with the aid of architects, assisted by Professor Hawkins, an interior adapted to the purposes intended was fitted to the picture of the building. Estimates were next procured, when the least sum required to complete the proposed building, exclusive of anything beyond a plain interior finish, was found to be about three hundred thousand dollars, which was deemed too great a sum to expend upon a building devoted wholly to paleontology—a science which, however interesting, is yet so imperfect as not to justify so great a public expense for illustrating it; certainly not until the living animals in charge of the Department have been properly cared for. It was suggested, however, to inquire what could be done if a portion of the building should be devoted to the proposed purpose in a limited degree, and the remainder to a grand aquarium. New plans combining these two features were then prepared of a less expensive character than those proposed by the original architects, but it was found impossible to erect on the foundation as designed and laid, owing to its peculiar form, any structure that would be desirable, at a less cost than two hundred and fifty thousand dollars, which, with the greatest care and economy in

the interior, would swell the cost to nearly three hundred thousand dollars, about the sum required by the original plans. The construction of any such building was therefore abandoned, and it was deemed best to fill in and cover up the foundations rather than to expend more money at a place that is not proper for any building, because at the proposed point the buildings would be on a line with the exterior streets, and interfere with the right of a property owner upon the avenue to enjoy the full and free view of the Park. The right to an unobstructed view from his residence opposite the Park is one of the benefits and advantages for which the avenue owner has been assessed. Wherefore the Department felt less hesitation in abandoning all purpose of building at this point.

THE SHEEP.

More than two hundred sheep, under charge of employees, were in the Park, with no other shelter than temporary sheds. The grounds of the Park afford advantages for sheep culture which the Department determined to improve by the erection of proper buildings. It prepared plans and commenced the erection of a sheepfold. This building is now nearly completed on the westerly side of the Park, near transverse road No. 1, at Sixty-eighth street, and when finished and occupied, must prove a great attraction to all classes of visitors.

THE ARSENAL MUSEUM.

There was not, however, as before indicated, any work

AMERICAN MUSEUM OF NATURAL HISTORY.

(TEMPORARY BUILDING.)

that seemed to demand more attention than the cleansing of the Museum building, and the preparation of suitable accommodations for the various animals in places where they would not be offensive. Before the close of the summer of 1870, the animals and birds were securely housed and caged in various buildings adapted to their wants, constructed by this Department.

A series of buildings surround the Museum, ornamental in design and convenient to the public. There are: one for the carnivora; one for the birds and monkeys; open-air sheds for the bears, wolves, &c.; roomy and open-air cages for the eagles, domestic fowls, &c.; an inclosed building for elephants, camels, and various tropical animals, and (in process of erection at the west of the Museum buildings) a larger structure intended for carnivora, tropical cattle, &c.

To these buildings and sheds, as fast as completed, all the animals and birds in the Museum were transferred, and the premises formerly used for them were adapted to use as offices of administration for the Department and its clerks. All these buildings are heated by steam that is generated in the basement of the Museum building and carried through pipes underground for a distance of three or four hundred feet. Thus there is afforded a uniform and easily regulated heat in each building, with security against fire.

In the upper story of the Museum building there was, as already mentioned, many unpacked cases containing speci-

mens intended for the Museum of Natural History. To accommodate them, show-cases suitable in character and design, were constructed by this Department, and the specimens may now be seen upon the second and third floors of the building. The show cases consist of butternut-wood, trimmed with black walnut, and are fitted with English plate-glass. For some time the Meteorological Bureau of the Department, an important branch of our work, under the charge of Professor Draper, has been located in this building. His interesting report is annexed.

Several of the rooms in this part of the building have been appropriated for the use of the Curators of the Museum, with every convenience necessary for preparing, adapting, and arranging specimens for exhibition. At the southerly end is an office for the use of the Trustees of the Museum of Natural History; also, one for the Chief Landscape Gardener, together with offices for the use of the Commissioners. The basement floor has been fitted for the purposes of the police, including a general office for transacting the business of the bureau.

ZOOLOGICAL GARDEN.

It was stated in the Reports of the late Commissioners that they had established a Zoological Garden on Manhattan square. By reference to a topographical survey (hereunto attached), it will be perceived that this square is about 18 acres in extent, most of it rocky, some parts projecting 25 or 30 feet above grade, and some lying 25 or 30 feet

below. It contains two ponds of water, the result of the surface drainage of the surrounding land. There is no sewer upon the island west of the Central Park from which these ponds can be drained. The only sewer connected with the ground is at Seventy-seventh street, and this is three feet above the bottom of the principal pond. How this square could ever be used for the purpose of a zoological garden, is not easy to understand. The first necessity for such a garden is ample drainage for the refuse of animals, and a spot incapable of being properly drained, must necessarily be an improper place for a zoological garden. In the expectation that such an institution would soon be considered a necessity in the Park, it was deemed advisable to locate the zoological garden in the meadow north of the Upper Reservoir; a proper survey of it being first made, to ascertain the character of its soil and its facilities for drainage. The report of the Engineer-in-Chief (attached hereto) shows that the new locality combines all requisites, and that to establish a zoological garden in Manhattan square would have been unwise.

There is a public impression that a zoological garden was planned by the late Board, which is an error. But it is proper to say that there are to be found among the effects of the late Department two papers on the subject, each purporting to be studies for such an institution. One of them appears to have been made by the landscape architects of that *regime*, but found to be impracticable. The other was prepared by the late Mr. Pilat, the Chief

Gardener under the original Central Park Commission and of this Department. Both of those studies were obviously immature, and, as the Engineer-in-Chief has stated, were incapable of being carried into effect, and no action was ever had in respect to either, except determining their impracticability.

OBSERVATORY.

There is also a public impression that there was a designed and developed plan for an Observatory in the Central Park. This, also, is erroneous. When the late landscape architects were called on for a statement of the structures under their control, or in course of progress, they sent only an immature and imperfect pencil sketch of a building for an Observatory.

CONSERVATORY.

There is another erroneous impression—that regarding the Conservatory. Its foundations were being constructed when this Department assumed office. Until after the present Board went into office, no matured plan existed for a Conservatory upon Central Park. The plan suggested by the late Board was one drawn up by their landscape architects, at the expense and under the orders of certain parties living on Long Island, who desired to use the proposed building for the purpose of cultivating flowers therein to be sold in bouquets. It was to be a two-story building, of about forty feet in height, which could not be called in any sense a

THE CENTRAL PARK.

THE LARGE CONSERVATORY.

Conservatory, or such an one as the public had reason to expect, or which would be appropriate to such an exhibition on the Central Park. The plan proposed by this Department is one which will result in a structure of a very different character from the one first proposed. It calls for a building about three hundred and seventy-five feet in length, forty-five feet in height in its interior, and in some parts one hundred feet in width. The central building to be a parallelogram, terminating at each end in rotundas or circles, and to contain a Conservatory for tropical and exotic plants. The artificial lake at the west of the Conservatory will form an attractive feature, in connection with the esplanade by which it will be reached. It should be remarked that this Department is not responsible for the site of this Conservatory and Lake, and that it would have selected some other locality if a great expense had not been already incurred in the foundations and in the artificial lake adjacent. One objection to the locality is that it will always be damp, no matter how perfect the means of heating the proposed building may be. Besides, the morning sun will not have access to it, unless the building be elevated much more than would have been necessary if it had been properly located. In order to obtain the height necessary to receive the benefit of the morning sun, and at the same time avoid the damp and cold of the locality, an additional floor or story must be constructed beneath the building, to run its entire length, and about sixteen feet in height. This can be appropriated to pomological and flori-

cultural exhibitions. The additional height will not detract from the beauty of the building.

THE LAWNS, TREES, AND SHRUBBERY OF THE PARK.

Mr. Pilat, the first chief landscape gardener, had been engaged upon the Park many years, though not absolutely in control of the Gardening Department, because (as he complained to this Department) he had been restricted to following orders without reference to his own fancy. He was a man of good judgment, large experience, of nice taste, and of great zeal in his profession. He was directed to summon to his assistance the best talent he could procure. He did so, and the Central Park for the first time was placed in untrammelled charge of a corps of capable and efficient gardeners, who are still continued—a corps unequalled for skill and efficiency. They considered it unnecessary for the natural adornment of the Park that the wooded portion should remain covered with an undergrowth of catbriers and tangled weeds to the exclusion of vistas of lawn and scenery; or that trees and bushes near the drives should remain so close together as to preclude the circulation of air, and shut out what would otherwise be beautiful views of landscape; or that the walks of the Park should remain without shade. The present Board concurred that in such respects the Park could be materially improved; and also that lower branches of trees, which obstructed pedestrians, could be removed with propriety; and that a proper system of pruning and trimming would

prove advantageous to trees and shrubbery. A visitor to the Park should be able at all seasonable times, in his walks through it, to rest himself under shade. To accomplish this, large trees have been transplanted from spots where they are not needed, to places at intervals along the sides of the drives and walks. This system will be continued until all the roads and walks upon the Park are amply furnished with shade trees.

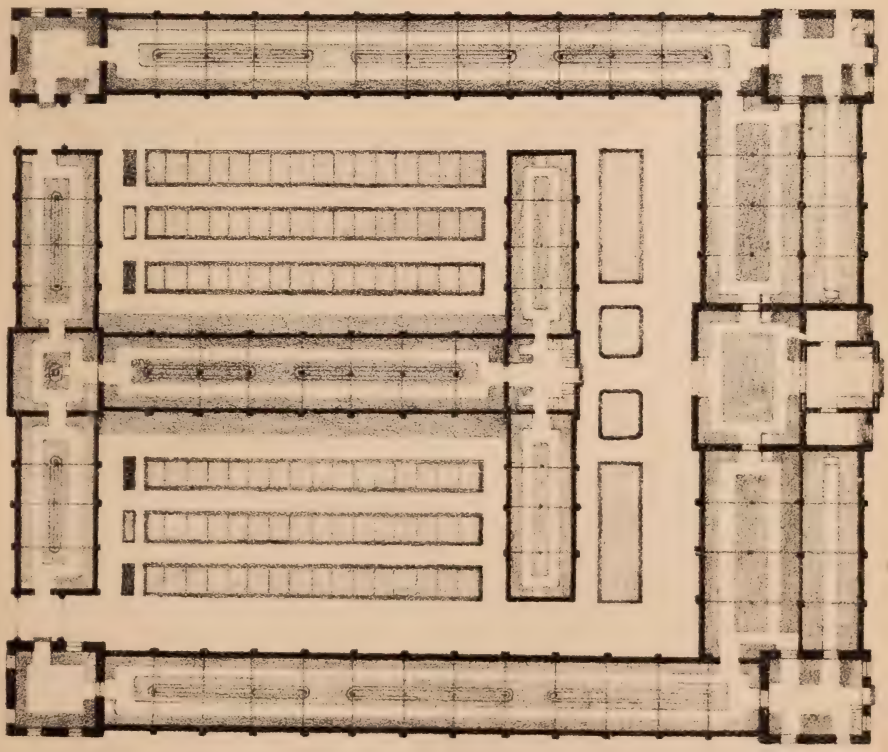
HOT-HOUSES, AND PROPAGATING-HOUSES.

The propagating-houses of the Park previous to 1870, were two in number, small in size, and in every respect inadequate. Indeed, the culture of flowers in the Park seemed almost to have been forbidden, so few were to be found. The principal hot-house of the Park (or what is yet called the "Conservatory"), at the side of Mount St. Vincent, contained a valueless collection, scarcely worthy of being kept under glass. If it was desirable to add flowers to the beauties of our parks, it became necessary to enter immediately upon the construction of propagating-houses and hot-houses of the proper character. The number of propagating-houses has been recently increased. But it is proposed at an early day to construct on the most approved plan a series of such houses in place of those at present existing, in connection with an intermediate Conservatory, of a size and character sufficient for the purpose of cultivating plants and shrubbery, which are to be placed at proper times in the grand Conservatory building when

finished; by means of which sufficient of this class of material will at all times hereafter be raised.

TOPOGRAPHICAL AND OTHER SURVEYS OF WESTCHESTER COUNTY.

The Department has in progress the proper topographical surveys of Westchester County, below the village of Yonkers, together with a plan for the improvement of Harlem River and Spuyten Duyvil Creek. It has also pushed forward the laying out of that part of the Island of New York located above One Hundred and Fifty-fifth street. There was no engineer in charge of this work at the time the Board entered upon its office. The various maps, surveys, and field-notes of engineers, and other memoranda, were discovered in a room of the former Department, piled up in mass, apparently without reference to subject or matter. The survey of a portion of Westchester County had been contracted for with two surveyors living therein. But as the money to be received from the towns of the County of Westchester had not been paid, the continuance of the work under those contracts was suspended. The portion of the work that had been done was in an unfinished state, and was contained in the pile of maps and field-notes. Indeed this branch of the Department presented chaos and disorder. With no one in charge of it, there was no one to give information as to its condition. The Civil and Topographical Bureau was organized by our placing at its head a chief engineer, and dividing it into four separate divisions, as heretofore stated. All the



PLAN & ELEVATION OF PROPAGATING HOUSE
CENTRAL PARK.

various maps, field-notes, sketches, and diagrams have been carefully collated, filed, and recorded.

THE TRANSVERSE ROADS.

The Transverse Roads—four in number—should have been long ago finished. These roads are still in the state in which they were left at the time when the Park was constructed. They have been to some extent utilized and prepared for public travel; they are partly lighted with gas, and at an early day will be entirely completed. The gas brackets designed, and cast for lighting them are believed to be good specimens of neatness and economy. What method shall be adopted in preparing these roads for public use, whether by stone pavement or some other pavement, is under consideration. But whatever may be the conclusion, it will be controlled by a determination to put down a roadway that will not require relaying or repairing for many years. The importance of making these roads available as means of communication from one side of the city to another cannot be overestimated; but it is also quite as important that they shall be so paved as not to be an objectionable feature to the Park.

THE WALL AROUND THE PARK.

This Department does not concur in the design of placing a solid Wall around the Park, deeming it an obstruction of the view from the exterior. Yet the plan adopted for this work had been carried out at so many

different points upon the Park, that there was no choice but to continue its construction. A more serious objection to it, however, is its great cost. The foundation of it, beginning eight feet below the surface of the sidewalk, and extending four feet above, consisting of a heavy bed of masonry supporting a superstructure of cut stone, is obviously not economy. It must now be continued entirely around the Park. This Department has adopted a different stone for the superstructure from that heretofore laid, substituting Ohio for the Nova Scotia or Dorchester stone; the latter is far inferior to the former, although the Ohio stone has been laid at about the same price.

SEWAGE FOR THE FILTH FROM THE ROADS.

A great error was made in the construction of the Park, in not providing a proper sewage for the filth from the roads, menagerie buildings, urinals, and various cottages in the Park. During the past summer the results from this defect were especially apparent. The lakes of the Park were supplied only by surface drainage, and had conveyed to them all the filth upon the Park. As a consequence of this system the lakes became green and stagnant, and in parts were quite offensive. Complaints had been made of this, but there were no means of remedying the difficulty. The Croton Reservoir could afford us no aid, as all its supply was needed for city use. The lake at Fifty-ninth street was the receptacle for the filth of all the animals in the Park; the large lake the receptacle for all the

principal urinals, cottages and roads of the Park. The upper lakes drained the section of the city west of the Park, including the lager-beer breweries and factories located at that point. In ordinary seasons, with the usual rain fall, this refuse matter would, to a great extent, be carried off by the drains attached to each of the lakes; but during great drought, such as was experienced in the past summer, the lakes seldom rose to the height of the drains, and all that came into them had to be evaporated in the ordinary way. It now involves a great expenditure to overcome these defects. At the time when the Park was constructed, but few street or avenue sewers were located around it to carry off the surface water, and then the Park lakes had the advantage of draining this surface water, and were always well filled, and the wasted water that came from them was sufficient at all times to keep what remained in a reasonably pure state. Not so, however, at the present time. Sewers have been rapidly built in the streets surrounding the Park, which take off all the surplus drainage from them, and leave only a supply to these lakes from the water-fall of the Park. The overflow from the Croton has never been of any account, and never will be, in all probability. A supply of water for the lakes must be provided otherwise. Whether this shall be done by drawing to them water from the river, or by erecting steam-engines and drawing off the water at one end and forcing it through at another, so as to produce a circulation, is a question to be determined. The water

of the upper lakes has always been in a condition quite objectionable. At present there is just enough of it for the purposes of cascade and for beauty, but it has never been of a quality that fish could live in. One of the lakes has been drained and cleaned. The same course would have been pursued with the others had time permitted.

SEWER FROM THE MENAGERIE AND MUSEUM BUILDINGS.

Workmen of this Department are now constructing a sewer from the Menagerie and Museum Buildings directly to the sewer at Fifty-ninth street. This is requisite because of the height of the Fifth avenue sewer adjoining, which is above the level of the grounds necessary to be drained. A system of sewage throughout the entire Park will be undertaken, by means of which the lakes will be freed from all impurities.

THE HARLEM RIVER IMPROVEMENT.

The Harlem River Improvement had not, apparently, been considered by the late Park Commissioners; at least, no evidence of their having considered it can be found within the Department. This subject has been entered upon by the appointment of a division engineer, under the control of the Chief of the Civil and Topographical Engineering Bureau. The whole matter is now receiving proper consideration.

THE SIDEWALKS OF THE PARK ON THE FIFTH AVENUE.

The Sidewalks of the Park on the Fifth avenue seemed an important portion of the ground to be improved and adapted to public use. They had been allowed to remain in the state they were left from the beginning, except that rough stone and other similar matter had collected upon them to an extent which rendered them impassable. An asphalt pavement has been laid along the entire width; two rows of trees throughout the length, as far as the walks were capable of being so prepared, have been planted, and before the close of last autumn this sidewalk was completed in the same manner as the Park paths up to Seventy-ninth street. Not only have trees been planted on the walk, but around each an elegant and strong wrought-iron guard has been placed, prepared from designs and under the direction of the Department, so that this portion of the work presents a finished appearance. This walk will be continued as fast as the wall of the Park shall be constructed, as it is found that the public enjoyment of this particular improvement is quite equal to that of any portion of the Park.

FIFTY-NINTH STREET.

Fifty-ninth street, adjacent to the Park, was in a very imperfect condition, only partly paved, and altogether presented a very unpleasant spectacle in connection with the beautiful grounds adjacent. The square at Fifth avenue and Fifty-ninth street was in a similar condition, and, in-

deed, in respect to this it is not at all surprising that there should have been hesitation in its improvement. Why this square was ever laid out, no one has been able to determine. Of what special use it is to the Park is beyond comprehension.

If width of entrance was needed, it could have been easily obtained within the Park, or by truncating the point of entrance. But the propriety of taking a square of ground for this purpose, at a cost of half a million of dollars, without any benefit, seems quite incomprehensible. It is now, however, proposed to improve it by placing upon it a fountain, surrounded by a plaza planted with trees, giving shade and accommodation for those who desire to enjoy it. All the possible advantages of it could have been had without any expense additional to the Park itself. It has been converted by us from a damp, muddy spot, into a roadway similar to that of the Park drives, and has been adapted to the grade of the roadway adjacent, by relaying the pavement of Fifth avenue and Fifty-ninth street, and paving and repaving the latter street until at the entrance of the Park, notwithstanding the rail-tracks, the roadways are all that can be desired.

THE EIGHTH AVENUE CIRCLE.

The Eighth Avenue Circle, adjacent to the Park, seemed to have been abandoned. The track of the Eighth Avenue Railroad, which bisected the circle, was removed through arrangements made by this Department. The central por-

AMERICA PROTECTED BY ARMY & NAVY

tion of the circle was finished, and the entire roadway completed upon the plan of the Boulevard, to which it is the opening entrance. This circle has been suggested as a proper place for the monument authorized by the Legislature two years ago to be erected in honor of the memory of the soldiers and sailors of our country who lost their lives in the late war. It is a proper place for such a monument, and the subject is now under consideration. Several plans have been considered for a structure of the character desired, and at an early day such a monument will be erected.

CONFINED CHARACTER OF THE DRIVES, AND ROAD WIDENING.

Numerous complaints were made respecting the narrow roadways of the Park, particularly at the northerly end and east of the great Croton Reservoir, and of the abrupt turns that had caused many casualties. It was apparent to any visitor of the Park that the roads upon the easterly side should have been originally formed eight or ten feet wider, or of the width of roads upon the westerly side. This Department has accordingly effected a widening of the roadway, and a remedy for the abrupt curves above mentioned, and now the traveling public have a commodious and convenient drive through all the hitherto constricted and dangerous portions of the Park. The road east of the upper reservoir, between it and the Fifth avenue, has been widened about twelve feet, the greatest extent of which it is

capable. In doing this all the trees bordering it, or within the place widened, have been transplanted, and not one thus far has been lost in the operation. A collection of evergreens will be planted along the avenue side of this road, as it is not desirable to plant deciduous trees, which will grow to a large size, in the narrow space between the road and the walk. The abrupt turn in this road at about Seventy-ninth street has been remedied by giving it a gradual curve. The widening of the roads west of the reservoir, and between it and the Eighth avenue, has not yet been undertaken. The widening there will be easily accomplished when desired, but it is not demanded at present. These improvements of the roads on the easterly side have entailed considerable expense wherever they crossed bridges and interfered with the transverse roads; still they have been done carefully, and without interference with the public travel during the whole progress of the work.

THE POLICE.

Although much had been claimed for the efficiency of the Park Police, the Board did not find it as efficient as they desired it to be. After many fruitless efforts to reform the discipline, it was determined to seek for a new Chief who would give confidence to the public as to his executive ability, and impart vigor and thoroughness of organization to his command. The neglect to provide proper accommodations for the Park Police was of itself demoralizing. This has been radically remedied. The basement of the Museum

building has been rearranged and fitted up with every convenience needed for a police force; as has also a sub-station in the basement of the Mount St. Vincent building. Captain Nathaniel R. Mills, who had been for ten years identified with the Metropolitan Police in positions of command, was selected as the Chief. He took charge of all the force under control of the present Board, consisting of park-keepers and gate-keepers, not only those in the Central Park, but in the numerous city parks and lands and places extending from the Battery to Mount Morris square. These duties demand superior organizing capacity, as well as great vigilance on the part of the Chief and of the lieutenant and sergeants under him. The change of captain has accomplished all that could be desired; and inasmuch as by an act of the last session of the Legislature the Department has been vested with full power to appoint its park-keepers, with police powers, it now has within its own control the means of making the police force a model in every respect. The system in respect to promotions, that was inaugurated by the late Commissioners, still remains the same; that is, no person can be appointed to the police force of the Central Park until after he has proved himself an efficient gate-keeper, and in that capacity acquired a knowledge of all the duties of a keeper of the park, or policeman; therefore the original appointments are always upon the gate-keeper force, and from that force are selected those who, from merit alone, are entitled to be promoted. The number of park-keepers is far less than it should be, and yet the expense attending an in-

crease of the force is so great as to cause hesitation in that respect. Every park-keeper costs on an average about fifteen hundred dollars per annum, and it is not justifiable to increase this expense without the most imperative necessity, and yet every portion of the Central Park should be within easy call of a policeman. At present, the arrangements of the force are necessarily limited to the drives and the principal walks. The Ramble, and other secluded places in the Park, ought to have a park-keeper always within sight, so that a lady or child can visit at any time all parts of the Park with perfect security, and without fear of molestation. The effect of properly supplying our city parks with policemen has been very beneficial. The force upon these places has been cautioned to be considerate and forbearing in the performance of their duties, especially toward children coming upon the squares; to rather repress rudeness than enforce any inflexible discipline. The children now frequent the squares, accompanied by their attendants, or without attendants, and it is a great gratification to know that the new arrangements have contributed to the pleasure and happiness of the growing population of the city. It is not enough to provide them with open parks and squares, where they may enjoy themselves in their childish amusements, but they should be protected at all times by a public officer ready and willing to be thoughtful, kind, and gentle, rather than harsh and overbearing.

SIDEWALK ENCROACHMENTS.

The uses of the streets around the Central Park, the

control of which has been confided by law to this Department, have been restricted by wholesome ordinances, providing that no structure shall be placed upon the line of the street without the consent and concurrence of the Board, excepting stoops and court-yards, which must conform to general regulations, and the plans of which must first be submitted to this Department for approval. There had been erected in Fifty-ninth street and the Fifth avenue buildings with inclosures and court-yards, directly in violation of the ordinances of the late Board of Commissioners of the Central Park, and of which no notice had been taken. Had the question been a new one whether or not the present Board would allow these encroachments upon the line of the street, the Department would doubtless have considered it improper to permit them in any degree, but, inasmuch as a number of owners of property had been allowed to erect buildings that involved large expenditures for stoops, areas, and court-yards, it became a necessity, for the sake of uniformity, to adopt a similar system in regard to new buildings rather than attempt to abate the results of previous violations of the ordinances. The new ordinances have been rigidly enforced by this Department, and no encroachments have been permitted without express permit, and such as are of a nearly uniform character with those already made.

THE CHIEF LANDSCAPE GARDENER.

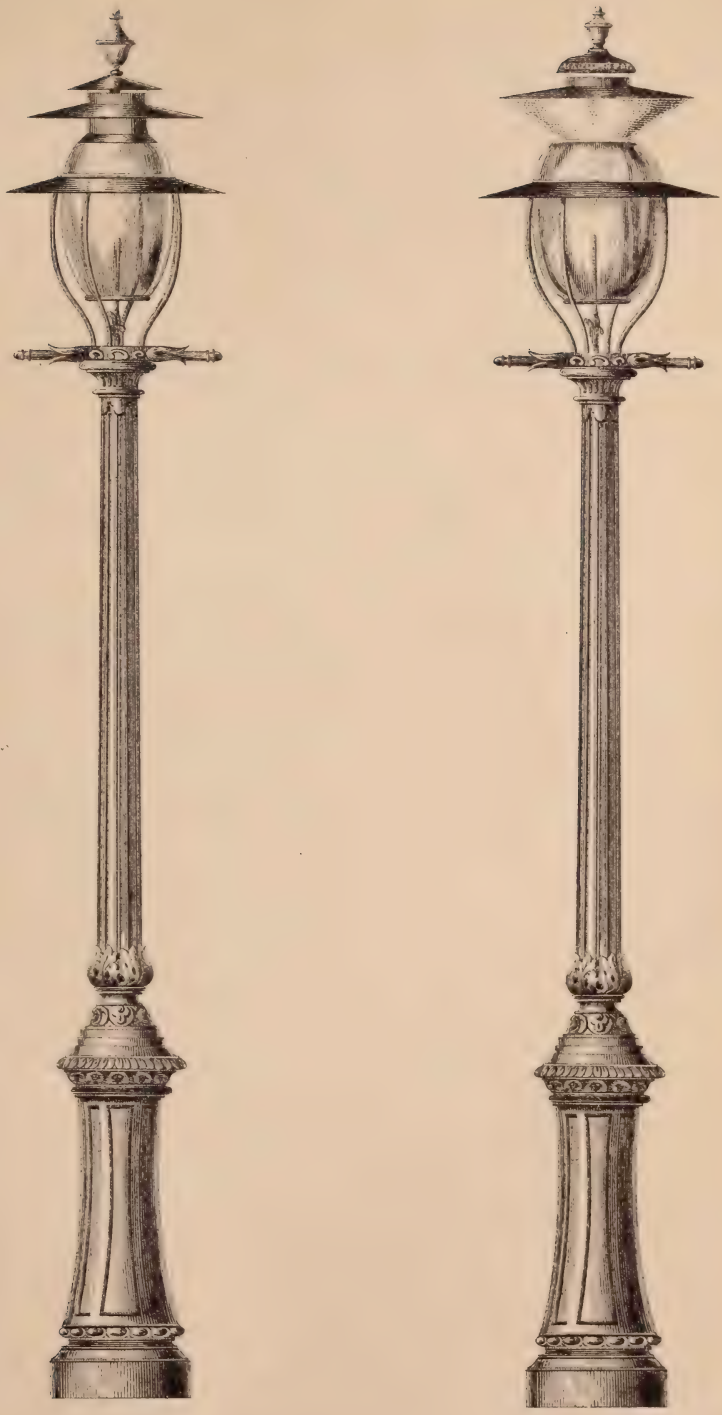
In the death of Mr. Pilat, the Chief Landscape Gardener,

within a few months after this Department organized, it met with a serious loss at the very outset of its official career. The Board was unwilling to fill his place until the able assistants whom he had gathered around him in his lifetime had been thoroughly tried. They were sufficiently experienced to warrant giving them a fair trial before placing in command any new and untried man, who had simply a reputation without any practical experience for the work in hand. The result has been highly gratifying, especially in the case of Mr. Pollard, as acting chief. Among the many thousand trees and bushes transplanted throughout the Central Park, and from that Park into the various city parks, thus far scarcely a single accident or loss has occurred.

Throughout the winter the planting was carried on with the frozen ball, and the opening of spring has fully attested the accuracy and perfection with which this was done. The Central Park itself has also been improved by the removal of the trees essential for that purpose; but, apart from that fact, had it not been for the Central Park, the trees required for city use could not have been obtained; thus while the Central Park has been improved by withdrawing these trees from it, the adornment of the other parks and places of the city has been accomplished at a moderate cost.

BOULEVARD AND AVENUES.

It is proposed to have the main Boulevard completed for use during the coming season, in its entire length to



DEPARTMENT OF PUBLIC PARKS,

The New Boulevard Lamp Post.

One Hundred and Fifty-fifth street, so far as a single roadway is necessary for the purpose.

The Sixth avenue is already open from One Hundred and Twenty-fifth street to the Central Park, thereby affording the inhabitants of Harlem an easy and pleasant means of access to the lower portion of the city, and to the citizens generally one of the most delightful drives ever provided on New York Island. The Boulevard itself is nearly open its entire length up to One Hundred and Sixth street at the present time. A year ago it was not open at all. Indeed, it was then in a very imperfect and chaotic state. The Avenue St. Nicholas is progressing now with great rapidity, the Seventh avenue likewise, and at an early day it is intended to commence the improvement of Manhattan street and Kingsbridge road, and also Tenth avenue.

These great main thoroughfares and necessities of communication, when completed, will provide access and development to the property upon the Island to an extent that will amply remunerate the city for all the expenditures that may be made upon such important lines of travel. These public works will be pushed forward with all possible speed. The sewage of these avenues will also receive prompt attention when the plans for the sewers of the streets adjacent are determined by the Department of Public Works.

THE COMPTROLLER OF ACCOUNTS.

Valuable assistance has been rendered the Department

by the Comptroller of Accounts, Mr. Van Nort, who has been so long connected with the Central Park, and who has been promoted to the position of Chief of the Bureau of Accounts. To this officer the greater portion of the inquiries must be made by those seeking information from the Department.

OF THE ENGINEER-IN-CHIEF.

The Board feel under great obligation to the Engineer-in-Chief, Mr. Kellogg, for the comprehensive capacity and untiring zeal with which he has executed all the plans and directions of the Board for the completion of the boulevards and avenues. His report, hereto appended, fully vindicates the approval and the high appreciation of his valuable services by this Department.

CHIEF CLERK.

Mr. Barker, the chief clerk in this bureau, has charge of the purchasing for the entire Department of all the materials required by the different bureaus. He has manifested great fidelity and trustworthiness in the management of that part of the business to which he is assigned.

SUPERINTENDENCE OF MR. CRANE.

The Central Park has, during the administration of this Department, been under the superintendence of Mr. Crane. He had long assisted in that work, but at the time when this Board entered office he was acting in a subordinate

position. He had been so long connected with the Park that he was deemed entitled to the higher position to which he was transferred.

ARCHITECT.

The architect, Mr. Mould, and his chief assistant, and constructing architect, Mr. Munckwitz, have superintended the various structures of the Park, have perfected the drawings necessary for all constructions and have directed the workmen engaged. The report of Mr. Mould demonstrates how attentive his bureau has been to its duties. The work performed there has not only been very considerable, but has been such as to require very great care, judgment, and taste. Apart from what has been done by this bureau during the past year, there are many projects on hand; and many drawings, designs, and studies now are before the Board for action.

CITY PARKS.

The care and management of the City Parks was a new, responsible, and embarrassing duty. The members of the present Board, having long been residents of the City of New York—some of them having been born here, and most of them having lived here the greater portion of their lives—all felt a sensitive regard for the eminent public demand that these parks should be converted from the neglected, repelling, and unpleasant places they had been for many years, into breathing-spots that should afford plea-

sure to the people frequenting or passing them, and to the masses who have not the means of frequent access to Central Park.

THE CITY HALL PARK.

The most conspicuous and therefore the first, although most uninviting Park demanding attention, was that of the City Hall. During the construction of the Court-House, a large portion of it adjoining Broadway had been fenced in and used as a place of deposit for unsightly incumbrances, lumber, stone, and refuse matter. The General Government, through its agents employed in erecting the Post-Office upon the lower portion of the Park, had also inclosed a space ninety feet in width, extending from Broadway to Park row. They had erected within that space a mass of sheds, stables, and one-story buildings, and surrounded it with a disfiguring fence that had been rented out for posting placards of every kind, creating a positive nuisance, and yet the Government agents at first seemed unwilling to yield up any part they had appropriated, or to aid the proposed improvements in any manner. However, it was finally arranged that they should relinquish a sufficient portion, which this Department availed itself of in order to construct a public street, from Broadway to Park row, for the purpose of relieving the great crush of travel and traffic that generally sets in during the business hours of the day from Printing House square to Chambers street. The Department, in improving this Park decided to throw into the

carriage-ways of Broadway and Park row the space used for sidewalks, thereby materially contributing to the convenience of pedestrians and the more rapid transit of vehicles. As a further improvement, the dilapidated iron railing around the Park was entirely removed. And now the existing condition of the City Hall Park, with its cultivated inclosures, its trees, shrubbery, fountains, and paved walks, excites universal approval.

TOMPKINS SQUARE.

Tompkins Square Park was next improved. It is located in a thickly-settled portion of the city, and surrounded by densely-occupied tenement houses. It had been appropriated by law to the military of the First Division as a parade ground, and therefore the Department was limited in the treatment of it. The plan thus far carried out is believed to be the best that can be adopted. It may be described in its present condition as a beautiful frame, the picture yet to be placed within it. If the military abandon its use for other places the picture can be inserted. The plan consists in laying out a grassplot forty feet in width around the interior border, and within this a walk of twenty-five feet in width for promenading. On the outer side of this walk rows of deciduous trees have been already planted, interspersed with lamps and benches and settees, in order that persons may have places of rest or enjoy the reviews of the military or the promenade afforded by the walks. The entire curb around the exterior sidewalk has been removed and

a new one substituted. Within the line of the curb, at every thirty feet, a deciduous tree is planted. All the trees within the bounds of this square that were in a dead or unhealthy state have been removed. The exterior sidewalk is covered with an asphalt pavement, which affords a smooth promenade equal to that of the Park itself. Two large public urinals have been placed in the square, suitably protected with evergreens. Also two sentry-boxes, or keepers' houses. Indeed, the whole place is made inviting, and the approval of the work at this point will be best determined by a visit. Here may be witnessed thousands of children enjoying the pleasures of open space. The question has been mooted of permitting this square to be used by ball-clubs; it has not, as yet, been allowed, and there are grave objections to any such use of a public park. However, the matter is under consideration.

THE BOWLING GREEN.

The Bowling Green, so prominently situated at the lower end of Broadway, on the route of the ferries, was found by this Department to be in a conspicuous condition of neglect and decay, but little inferior to that of the adjacent Battery grounds. It presented some evidences of efforts at improvement and ornamentation made long ago, when it was surrounded by fashionable residences. There were the remains of a tasteful fountain, which had long ceased to play, and of trees and shrubbery, which were dead or dying from long neglect. The Bowling Green, aside from

Rockwood Phot.

Bowling Green.

its prominent position, is an object of interest to all New Yorkers from its memorable associations. Its renovation was considered one of the earliest duties of the Department, and much has been done for it comparatively. The railing around it, a relic of old times, has been repaired and painted, and the gates and coping reset. The fountain has been put in good order and set playing, the whole ground sodded, and new walks laid out, with posts and chains guarding them, and neat settees provided for the comfort of wayfarers and of those who may desire to frequent this conveniently situated little spot. New trees were substituted for those dead or dying, and shrubbery and flowers added, and it is now one of the most beautiful and attractive places in the city.

THE BATTERY.

The Battery has, in its natural advantages, attractions as a place of recreation, unsurpassed, probably unequaled, by those of any similar public place in the world. The fresh sea-breeze and the comprehensive view of our noble harbor, always alive with the movement of ships and steamers, combine to make it at once the most wholesome and the most inspiriting means of bodily and mental refreshment within immediate reach of our citizens. Nevertheless, we found its great natural attractions overcome by an offensive and unsightly condition of its walks and borders, the result of long neglect. When the neighborhood was the residence of men of wealth this Park was kept in good

order. The population now found in its vicinity need more than any other, cheap and accessible means of healthful recreation; and the obligation of the city to preserve this noble Park is stronger than ever before. Our work upon it has gone already far enough to prove to the public that we recognize this obligation.

Castle Garden, the emigrant's landing-place, is a necessary adjunct to our harbor, at least temporarily. It is difficult to counteract its unpleasant appearance; still the Department shall do so, and in a short time make the Battery a permanent, inviting and delightful place for the wearied toilers in its vicinity, restoring, too, the charms it had of old, for the stranger visiting our city. The Department has filled in about seventy thousand yards of material and nearly finished the sea-wall; the grounds have been laid out in plots, elegant and picturesque in appearance; over a thousand trees and bushes have been planted. Nor have we forgotten the necessity of adapting the adjacent streets to existing and future business traffic, not detracting materially from the capacity of the Battery itself. Whitehall street, at the entrance to the ferries, we have converted into a great open space or plaza, by throwing into it about seventy-five feet of the Battery, being a portion not very capable of ornamentation. State street, with its single rail-track, was little frequented by vehicles: by adding twelve feet to its roadway, and relaying the street pavement throughout its entire length, it has been made attractive for purposes of traffic. The Department proposes erecting around the exte-

rior on Battery place, State street, and Whitehall street, several drinking fountains, and several for the use of horses. Throughout all the city parks it is intended to erect similar fountains.

Another greatly needed convenience introduced upon the city parks has been the public urinals. The Board propose also to erect in the several city parks cottages for ladies and children, of the same class as those upon Central Park, containing comfortable dressing-rooms, at all times in the care of an attendant, and protected by a park-keeper within convenient call.

LADIES' COTTAGE,
Central Park.

The small squares or open places of the city, consisting of triangles and odd pieces of ground, will all be converted into plots agreeable to the surrounding neighborhood, instead

of leaving them offensive spots, the resort of vile characters for improper purposes, as had been the case of late years.

THE DUANE STREET PARK.

The Duane Street Park possessed a half-destroyed fence, and was in a state of dilapidation. Its renovation was undertaken, and it has been made an elegant little triangular spot, filled with deciduous trees, evergreens, and shrubs.

BEACH STREET TRIANGLE.

In a similar condition was the small triangle at Beach street, except that it had, besides the objectionable features of the Duane Street Park, a number of ailanthus trees giving out their offensive odor. The neighbors desired them to be removed, and this was willingly done. The place is now in an attractive condition.

FOOT OF CANAL STREET.

At the foot of Canal street was an open place which had been used for many years as a dumping ground; and persons having occasion to visit the North river steamers at this point, will recollect that open space. It has been provided with a new railing, coping, sidewalk, and curb, and with a park-keeper in charge. It is now the resort of the children of that neighborhood (a portion of the city filled with an immense population of the working classes), and large numbers congregate about the walks of this little park enjoying themselves after school hours.

PARKS ON THE SIXTH AVENUE.

The parks on the Sixth avenue, at Thirty-second and Thirty-fourth streets, have been converted into flower gardens. The sidewalks have been treated the same as the other small parks, with new curbing and the Scharff asphalt pavement. A fountain has been placed in the Thirty-second street Park.

PARKS UPON PARK AVENUE.

The parks upon Park avenue, over the Harlem Railroad tunnel, have received considerable attention. After their improvement was begun, an application was received from the Harlem Railroad Company to permit the construction of openings through them for the light and ventilation of the tunnel underneath, intended for the use of their horse-car railroad and passengers generally. Five openings in each park, of a character that do not materially interfere with the proper ornamentation and planting, were accordingly made. Their effect has been to ventilate and improve the tunnel to such an extent as to make it as light as desired for the purposes of the railroad; while, at the same time, the openings have not interfered materially with the planting. They are now nearly completed. The floral portion of the planting has been perfected. The openings will be coped with granite similar to that of the railing on the exterior; this will be surmounted by a neat trellis railing, over which will be trained delicate vines which, not obstructing the light

through the openings in the tunnel beneath, will tend to beautify the parks above.

THE TRIANGLE AT THE FIVE POINTS.

The triangle at the Five Points is still incomplete, owing to the fact that the grade of the streets surrounding this spot is intended to be raised some six or seven feet; and while awaiting the action of the proper Department for this purpose, nothing has been done except to prepare the railing and coping, to be set at any moment.

WASHINGTON SQUARE.

Late in the autumn plans were matured for the improvement of Washington square, but soon after the commencement of the work the cold weather caused it to be suspended. It was recommenced in the spring, and is being rapidly completed. The plan for avoiding the irregular appearance that the extension of Fifth avenue at this point would produce, had it been carried out in the manner intended, meets the public approval. It is proposed as a part of the design for the improvement of this place that it shall include the extension of Sullivan street, through from Amity to Fourth, to meet one of the roads across the square in front of the proposed opening. When this shall be completed, the traffic of Sullivan, Thompson and Laurens streets, from West Broadway and Canal street, will be drawn to the Fifth avenue, and thus very materially relieve the travel upon Broadway. The work at this point has been very heavy; but it has

been so utilized as materially to lessen its cost. The surplus earth of this square was transferred to Tompkins square, which required many thousand cubic yards of earth and loam; saving much expense which otherwise would have been incurred.

RESERVOIR SQUARE.

Reservoir square is now receiving attention. The plans were perfected during the past winter, and the Board will remove to it so much of the railing of Madison square as is needed, as they intend to dispense with railing at Madison square. This square will in a few months be completed.

MADISON SQUARE.

The plans for the improvement of Madison square will be entered upon as soon as practicable without interfering with the summer use of the Park. It is proposed to add to the streetway of Fifth avenue seventy feet of the present sidewalk and square, and thereby make almost a straight line of walk from the east side of Broadway at Twenty-third street to about Twenty-fifth street and Fifth avenue; the entire railing will be removed, fountains will be constructed at the upper and lower ends of this square, and the area of the triangle upon which stands the Worth monument, will be reduced to a reasonable dimension, so that the greater part of it may be given to the streetway proper. It is at all these points that vehicles, railway cars and pedestrians

are becoming more and more crowded and annoyed. All these projected improvements must command popular approval.

THE TRIANGLE AT CHRISTOPHER STREET.

The triangle at Christopher street has not been altered, but it has been improved and kept in condition by planting bushes and beds of flowers.

MOUNT MORRIS SQUARE.

Mount Morris square, the great public park of Harlem, and one of the most beautiful public places on the Island for capabilities of ornamentation, has received a large share of consideration. The former Chief Landscape Gardener, Mr. Pilat, believed it to be capable of being improved to a very high degree: the roads winding up to the hill in its centre, rising far above the grades of the streets adjacent, make it an agreeable place of resort when the atmosphere is clear and a walk up the hill is inviting. The portion of this, which is of even grade with the surrounding streets, has been nearly completed. The square will soon be completed in every respect, except as to buildings. When the neighborhood about this spot is built up, there will be afforded to those in charge of this park an opportunity for constructing an architectural entrance at Fifth avenue.

HIGH BRIDGE PARK.

High Bridge Park has been partly surveyed, and as soon

as the topographical map of it is completed, its improvement will receive the attention of the Board.

MORNINGSIDE PARK.

Morningside Park became part of the city property about the time this Department organized. The necessary work to be performed at all other points during the great heat of the last summer, prevented work until the winter months, when engineers prepared to lay it out, and present a map from which to prepare a plan for its improvement. It is, as is well known, a very difficult piece of ground to treat for purposes of a garden or public park or place, being on a side hill, and composed of a mass of rock, with a small plateau at the lower end. It is not only a very expensive work to undertake, but one that will poorly exhibit any attempted improvement.

RECENTLY CONFERRED JURISDICTION.

The Legislature, at its session just closed, enacted two important laws with respect to this Department. The act in respect to Westchester County very largely increased the jurisdiction and duties of the Board over that county, besides imposing upon them the care of the bridges across the Harlem river. There is now at work upon Macomb's Dam Bridge a force of engineers and workmen to prevent, if possible, any injury happening to that structure. This bridge was regarded as dangerous, and the timbers had been decaying for some time. The chief civil and

topographical engineer of the Department, Mr. Grant, with a force of competent assistants, has this matter in charge, and no injury can happen, provided the rules adopted for the use of the bridge, while undergoing the necessary repairs, shall be observed. Two municipal policemen and two park-keepers are stationed there, and instructed to enforce the regulations. The greatest care and caution shall be exercised until the necessary supports are placed under the bridge. The Board hope to be able to put it in a condition that will allow the construction at this point of a tunnel or an iron bridge, and to so provide that until the tunnel or iron bridge is constructed, the present wooden bridge may be used without danger.

THE SUSPENSION BRIDGE.

The Suspension Bridge authorized across the Harlem river, within half a mile above High Bridge, will soon be commenced. The report of the Chief Engineer (attached hereto) gives all necessary particulars upon this subject.

CONDUCTING DAILY BUSINESS.

This report would not be complete without referring to the change that has been made in the method of conducting the daily business of the Department. The offices in which the late Commissioners carried on their business were ill adapted to the purpose. The public had not ready access to the information which should be within their reach at all times and without favor. The offices have been removed to a

convenient and accessible point, and at the same time so arranged as to afford the public every facility for information. Any one seeking knowledge on any subject within the control of the Department, or information respecting its employees, is now able to procure it at all times. The maps of the various contemplated improvements, and all information respecting them, can now be had. The system of accounts has also been changed, so that every structure and every city park has a separate account of its expenditure, and at any time the cost of any single improvement can be ascertained. The Board propose to continue this system, and have discontinued the former plan of including all such expenses in one general account.

In addition to all its work, the Board had to meet the difficulties incident to a summer of the greatest heat and drought within the recollection of the oldest inhabitant. All kinds of work were in a great degree suspended, and it was difficult to enforce rules upon labor, with a summer sun at a temperature of 130 degrees. Another difficulty had to be encountered in conforming to the law of 1870, declaring eight hours to be a day's work, directing that all public officials should conform thereto, and declaring that all attempts to evade this law would be followed by impeachment and removal from office. The most material effect of this law was to reduce the proportion of actual results in the working of the Department one-fifth in amount, as by taking two hours from the former working day of ten hours, four-fifths only of the quantity of work is per-

formed for the same amount of money. This was equivalent to increasing the cost of maintaining Central Park alone, $50,000 per annum, while the appropriation for this purpose remained at $300,000, the same amount that had been found necessary for its maintenance during former years when under the control of the late Park Commissioners.

HEADS OF BUREAUS.

Reports from the various heads of bureaus within the Department are hereunto attached. They were called upon to state in a brief form the works that have engaged their attention during the past year. These will be found to treat with great particularity the subjects to which they refer.

The report of the Engineer-in-Chief is especially interesting. The maps or plans attached give a proper idea of the improvements upon the various city parks and avenues.

IMPROVEMENTS EXPECTED.

The Board expect before the present season closes to complete all the city parks, and thereafter to be enabled to devote more attention to the completion of the principal avenues already referred to—the Morningside and Riverside Parks, the improvement of Harlem river, the construction of bridges over it, and the improvement of the portion of Westchester County committed to their jurisdiction.

They also propose to enter immediately upon the consideration of the improvements of the east side of the city

authorized by the Laws of 1871, establishing the Eastern Boulevard. They have already prepared the necessary topographical surveys of the city above Fifty-seventh street and east of the Fifth and Sixth avenues.

The subject of the grades of all this section of the city, the laying out of the Eastern Boulevard, the widening or closing of such streets as may be considered advisable within that district, is one that requires a great deal of consideration and judgment. Not only must the Board have the necessary surveys made, but also the locality of every structure within the district laid down upon the maps prepared. They will consider this subject during the present season, and determine in regard to it.

By order of the Board.

PETER B. SWEENY,
President.

HENRY HILTON,
Treasurer.

GEO. M. VAN NORT,
Clerk Ex-officio.

REFERENCE TO THE CENTRAL PARK MAP.

1. Humboldt Monument.
2. The Pond.
3. Museum and Park Offices.
4. Dairy.
5. Children's Cottage.
6. Children's Summer House and Play Ground.
7. Ball Players' House.
8. Play Ground.
9. The Green.
10. Statue of Commerce.
11. Carrousel.
12. The Marble Arch.
13. Site of Shakspeare Monument.
14. The Mall.
15. Oak and Elm, planted by Prince of Wales.
16. Music Pavilion.
17. Vine-covered Walk.
18. Carriage Concourse.
19. Casino, or Refreshment House.
20. Croquet Players' House.
21. The Terrace.
22. Fountain.
23. Bronze Statue of Tigress.
24. Drinking Fountain for Horses.
25. Mineral Spring Building.
26. Site for Refectory.
27. The Lake.
28. The Bow Bridge.
29. Ladies' Cottage.
30. Balcony Bridge.
31. West Carriage Step—entrance to Ramble.
32. Schiller's Monument.
33. Gentlemen's Cottage.
34. The Ramble.
35. The Tunnel.
36. The Belvedere.
37. The Cedars.

38. East Carriage Step—entrance to Ramble.
39. Evergreen Walk.
40. Site of Morse Statue.
41. Conservatory Lake.
42. The Conservatory.
43. Proposed Art Museum and Hall.
44. The Maze.
45. South Gate House.
46. Stable.
47. Reservoir Keeper's House.
48. Spring.
49. The Knoll.
50. North Gate House.
51. The West Meadow.
52. The East Meadow.
53. The Pool.
54. The Loch.
55. Mount St. Vincent House of Refreshment.
56. The Nursery.
57. Old Fortification.
58. Harlem Lake.
59. The Cliffs.
60. Block House, War of 1812.
61. The Briars.
62. 7th Regiment Monument.
63. The Great Hill.
64. Deer Paddock.
65. Sheep Cote.
66. Fifth Ave. Plaza and Fountain.
67. The Circle.

a. Arbor.
b. Bridge or Archway.
c. Cascade.
d. Drinking Fountain.
h. Horse Drinking Place.
l. Boat Landing.
s. Summer House.
u. Urinal.

MAP OF THE CENTRAL PARK

APRIL 20th 1871

APPENDIX.

APPENDIX.

LEGAL HISTORY OF THE JURISDICTION OF THE DEPARTMENT OF PUBLIC PARKS.

This Department began its existence with the present Charter of the City of New York. Its various powers, important duties, and extensive jurisdiction were conferred and authorized by Chapter 137 of the Laws of 1870, being the Charter referred to, entitled "An act to reorganize the local government of the City of New York." By sections 94, 95, and 96 of that act, it was declared that the Department of Public Parks should control and manage all public parks and public places above Canal street, within the City of New York, the Department to be under the charge of a Board, to consist of five members appointed by the Mayor of the city, and all provisions of law which provide for the maintenance and government of Central Park, or grant powers and devolve duties upon the Commissioners of Central Park, theretofore existing, were applied to the Department of Public Parks, thereby established, and to the Commissioners thereof respectively.

By Chapter 383 of the Laws of the same year, being an act amendatory of the Charter referred to, all parks and public grounds south of Canal street were placed under the control and management of this Department, and all acts conferring powers and devolving

duties upon the late Board of Commissioners of Central Park were thereby transferred to and conferred upon the Department of Public Parks; and the Department was authorized to include in the estimate of moneys required for the maintenance and government of Central Park, such further sum as might be annually required therefor, together with such sums as might be necessary for the improvement of the several parks, roads, and avenues under its control.

By section 15 of the last amended act, the Public Drive, known as the Boulevard, was declared to be wholly under the care, management, and control of this Department, and as to the use thereof the Department was declared to possess and enjoy all the powers possessed and enjoyed or exercised by the late Board of Commissioners of Central Park.

The first act establishing the Central Park in the City of New York is Chapter 616 of the Laws of 1853, entitled "An act to alter the map of the City of New York, by laying out thereon a public place, and to authorize the taking of the same." This act fixed the boundaries of the Central Park, commencing at Fifty-ninth street, and extending to One Hundred and Sixth street, from the Fifth to the Eighth avenue. Authority was given to take this land for the purposes of a public park, and providing means for payment to the owners thereof. Afterward, in the year 1857, there was passed "An act for the regulation and government of the Central Park in the City of New York" (see Chapter 771 of the Laws of that year). By this act it was declared that the land referred to should thereafter be known and entitled as "The Central Park," and placed under the exclusive control and management of a Board of Commissioners, to consist of eleven persons, named and styled "The Commissioners of

the Central Park." The act named the Commissioners, and declared that generally, in regard to said park, they should possess all the power and authority by law conferred or possessed by the Common Council of the city in respect to the public places and squares therein. Further, that no plan for laying out, regulating, and governing said park should be adopted or undertaken by the Commissioners, the entire expense of which, when funded, would require for the payment of the interest thereon a greater sum than one hundred thousand dollars per annum. A public fund or stock was created, not exceeding the aforesaid limitation, providing means for the improvement of the Park. The Board of Commissioners were authorized to pass such ordinances as in their judgment might seem necessary for the regulation, use, and government of the Park, not inconsistent with the ordinances and regulations of the corporation of the City of New York; persons offending against the same to be deemed guilty of a misdemeanor, punishable by fine, and in default of payment by imprisonment.

By Chapter 101 of the Laws of 1859, entitled "An act to alter the map of the City of New York, by laying out thereon a public place, and to authorize the taking of the same," there was added to the Park all that portion of the City of New York lying between One Hundred and Sixth street and One Hundred and Tenth street and Fifth and Eighth avenues; the Commissioners were authorized to acquire title thereto in the usual manner. Provision was made for the means wherewith to pay for the land thus added to the Park. The last section declared that, as to the laying out, control, and management of this additional piece of ground, it should be subject to all the provisions of the previous laws in respect to the Central Park, and should be under the exclusive control and management of the Commissioners thereof.

By Chapter 349 of the Laws of 1859, entitled "An act to amend an act entitled 'An act for the regulation and government of the Central Park, in the City of New York,' passed April 17, 1857, and further to provide for the maintenance and government of said Central Park," it was declared that the Board of Commissioners should consist of not less than seven nor more than eleven persons, and the Commissioners then in office were authorized to fill any vacancies in the Board then existing; further, that no plan for laying out, regulating, and governing the Park should be adopted or undertaken by the Commissioners, of which the entire expense when funded, would require for the payment of the interest thereon a greater sum than one hundred and twenty-five thousand dollars per annum. And for the payment of the interest on the stock thus authorized, the Board of Supervisors were directed to cause to be raised by tax on real and personal property within the city and county, every year, until the whole amount of said fund or stock should be paid, a sum sufficient to pay the same.

By Chapter 363 of the Laws of 1850, entitled "An act to alter the map or plan of the City of New York," all that part of the Seventh avenue in said city lying between the southerly side of One Hundred and Tenth street and the Harlem river was declared to be widened by adding thereto, on each side thereof, twenty-five feet, so as to make the whole width of the said avenue one hundred and fifty feet; that it should be laid out and regulated under the supervision of the Commissioners of Central Park, but no action should be taken in relation thereto, until the owners of at least one-half of the front of that part of the avenue should petition the Common Council for such widening.

By Chapter 85 of the Laws of 1860, entitled "An act for the

construction, regulation, maintenance, and government of Central Park in the City of New York, and to provide additional means therefor," the Mayor, Aldermen, and Commonalty of the city were required and directed to create and issue a public fund or stock for the purpose of providing means for the laying out, construction, government, improvement, and regulation of Central Park, to be denominated "The Central Park Improvement Fund," the annual interest of which was not to exceed one hundred and fifty thousand dollars. The Commissioners of the Park were also authorized to estimate annually a sum not exceeding one hundred and fifty thousand dollars for its maintenance and government during the year, and the Board of Supervisors was required to raise and collect by tax that amount, upon the estates, real and personal, liable to taxation in the City of New York.

By Chapter 88 of the Laws of 1861, entitled "An act to amend an act entitled 'An act to amend an act entitled "An act for the regulation and government of the Central Park in the City of New York," passed April 17, 1857, and further to provide for the maintenance and government of the said Park,' passed April 15, 1859, and further to provide for the construction, maintenance, and government of the said Park," the terms of office for the then Commissioners were continued for five years thereafter, with power to fill any vacancies occurring in their Board, and conferring upon them all the rights, powers, and authorities theretofore conferred by any act or acts of the Legislature of this State upon the Commissioners of the Central Park or upon the said Board. The Board was also authorized to take and hold any gifts, devises, or bequests that might be made to it, and upon such trusts and conditions as might be prescribed by the donors or grantors thereof, and agreed to by said Board, for the purpose of embellishing or

ornamenting said Park; and annually should make a statement, in detail, of the condition and value of all such gifts, devises, or bequests, and of the names of the persons by whom the same were given, devised, or bequeathed.

By Chapter 275 of the Laws of 1864, entitled "An act to amend an act entitled 'An act to alter the map or plan of the City of New York,'" passed April 15, 1859 (being the act in relation to the Seventh avenue), that act was by this law amended by declaring that the Seventh avenue, between Central Park and the Harlem river should be widened, opened, laid out, graded, regulated, sewered, paved, and improved by and under the direction of the Commissioners of Central Park; and all acts and parts of acts then in force in relation to the widening, opening, laying out, grading, regulating, sewering, paving, and improving the streets and avenues in the City of New York were applied to that part of the said avenue in its enlarged width, except that the Commissioners of Central Park were authorized, for and in the name of the Mayor, Aldermen, and Commonalty of the City of New York, and the several departments thereof, to perform the work to be done under the provisions of this act; and further, that the Commisioners should possess all the powers and perform all the duties in relation to the widening, opening, laying out, grading, regulating, sewering, paving, and improving such part of the Seventh avenue in its enlarged width, and each and every part of the said avenue, which the said Mayor, Aldermen, and Commonalty of the City of New York and the several departments thereof then possessed in, to, and upon the other streets and avenues in the city. The Park Commissioners were directed to apply for the appointment of the proper Commissioners for the opening of the avenue as thus widened, and it was declared as to such part of said avenue in its enlarged width,

that it should thenceforth be under the care, management, and control of the Commissioners of Central Park, in the same manner and to the same extent as the Central Park was or might thereafter be under their care, management, and control.

By Chapter 319 of the Laws of 1864, entitled "An act in relation to Manhattan square, in the City of New York," the piece of ground known as Manhattan square, bounded by Seventy-seventh and Eighty-first streets and the Eighth and Ninth avenues, was annexed to Central Park, and placed under the care, management, and control of the Commissioners thereof as fully and completely as the other part of said Central Park was or might thereafter be under their care, management and control. It was made the duty of the Commissioners to inclose, lay out, grade, regulate, drain, and improve the said piece of ground thus annexed, and to connect the same with Central Park in such way or ways as should not interfere with the full, free, and uninterrupted use of the Eighth avenue as a public street; and they were authorized to establish and maintain on the said piece of ground, or on any other part of Central Park, a botanical and zoölogical garden.

By Chapter 26 of the Laws of 1865, entitled "An act for the improvement, maintenance, regulation, and government of the Central Park in the City of New York, and to provide additional means therefor," the Mayor, Aldermen, and Commonalty of the City of New York were authorized and directed to create and issue, in such amounts as should be deemed by the Board of Commissioners of Central Park requisite, a public fund or stock to the aggregate amount authorized by this act, the stock to be denominated "The Central Park Improvement Fund;" and the aggregate amount authorized to be issued was limited to a sum of which the annual

interest, at the rate of interest at which the stock might be issued, would be one hundred thousand dollars. For the payment of this interest, the Board of Supervisors were directed to cause to be raised by tax on the estates, real and personal, subject to taxation, every year, a sum sufficient to pay the interest aforesaid. The moneys derived from this stock were to be used and appropriated by the Board of Commissioners of Central Park for the construction, improvement, and regulation of that Park. By the last section in this act it was declared that no military encampment, parade, drill, review, or other evolutions or exercise should be held or performed in said Park, or any part thereof, except with the previous consent of the Board of Commissioners thereof; nor should any military company, regiment, or military body enter or move in military order within the said Park; and no military officer should have authority to order, direct, or hold any such parade, drill, review, or other evolution or exercise, or encampment within said Park, except in case of riot, insurrection, rebellion, or war.

By Chapter 564 of the Laws of 1865, entitled "An act for the improvement of part of the City of New York, between One Hundred and Tenth street and the Harlem river," it was declared that all that part of Sixth avenue, in the City of New York, lying between the southerly side of One Hundred and Tenth street and the Harlem river, should be widened on the map or plan of said city by adding thereto, on each side thereof, twenty-five feet of land, so as to make the whole width of that part of the avenue one hundred and fifty feet. The Commissioners of the Central Park were authorized and directed, in behalf of the Mayor, Aldermen, and Commonalty of the City of New York, to apply for the appointment of Commissioners for the taking of this land, and appropriating it for the purposes of a public street or avenue.

By section 4 of this act it was declared that the said Sixth avenue, together with the streets laid out on the map or plan of the City of New York between the southerly side of One Hundred and Tenth street and the Sixth and Seventh avenues and the Harlem river, should be wholly under the care, management, and control of the Commissioners of the Central Park, for the purpose of fixing the grades of the said avenue and streets, and of regulating and grading and otherwise improving the same in such manner as they might deem the public interest might require; and for that purpose the said Commissioners, as to said avenue and streets, and the use thereof, should have, possess, and enjoy all the powers then or theretofore possessed, enjoyed, or exercised by such Commissioners in respect to the Central Park of said city, and by the Mayor, Aldermen, and Commonalty of the City of New York, and the several departments of said city, in relation to the streets, avenues, and similar improvements thereof in other parts of the said city, and the expenses of such improvements should be assessed upon the owners and occupants of all lands and premises benefited thereby, and they should become a lien upon such lands, and be enforced in like manner as was then provided by law in relation to assessments for regulating and grading and otherwise improving streets in the City of New York.

By Chapter 581 of the Laws of 1865, entitled "An act in relation to the Croton Aqueduct in the City of New York, and certain streets in the said city," after making provision in respect to such aqueduct, by section 3 it was declared that whenever, in the opinion of the Commissioners of the Central Park, it should become necessary for the proper drainage of the Park, or any street or avenue bounding the same, or under the charge of the Commissioners thereof, to open any street in the city; or whenever,

in their opinion, it should be necessary to grade or regulate any street bounding the said Park, or under the charge of the said Commissioners, they might notify the Mayor, Aldermen, and Commonalty of said city that it was necessary to open, regulate, or grade such street; and the said Mayor, Aldermen, and Commonalty should, within thirty days thereafter, commence the proceedings prescribed by law, to open, grade, or regulate such street, and should continue and complete such proceedings without delay, suspension, or discontinuance; and if the said Mayor, Aldermen, and Commonalty should fail to take, continue, and complete such proceedings as were therein required, the said Commissioners should thereupon take and become vested with all the powers in the matter possessed by the said Mayor, Aldermen, and Commonalty of the City of New York; provided, however, that all necessary legal proceedings should be conducted by the Corporation Counsel.

By Chapter 565 of the Laws of 1865, entitled "An act to provide for the laying out and improving of certain portions of the City and County of New York," it was declared that the Commissioners of Central Park should have and possess exclusive power to lay out streets, roads, public squares and places within that part of the City of New York to the northward of the southerly line of One Hundred and Fifty-fifth street, of such width, extent and direction, and upon such grades as to them should seem most conducive to the public good; and further, it should be the duty of the said Commissioners, as soon after the passage of the act as might be, to lay out a road or public drive, running from the northerly portion of the Sixth and Seventh avenues, in a generally northerly or northwesterly direction upon the easterly or Harlem

river side of the city, as far north as the said Commissioners might determine; thence, in a generally western direction, to or near the Hudson river, and thence, in a generally southerly or southeasterly direction, along the westwardly or Hudson river side of the city, until such road or public drive should enter the Central Park at or near the junction of the Bloomingdale road with Eighth avenue and Fifty-ninth street; such road to follow the course of the Bloomingdale road below One Hundred and Sixth street whenever the Commissioners should deem such course advantageous. The Commissioners were to determine the location, width, courses, winding, and grading of said road or public drive; and might widen the Bloomingdale road and determine the grades thereof, and of intersecting streets and avenues, as they might deem it necessary for the perfecting of such road or public drive. The Commissioners were directed to enter upon and cause surveys to be made of the lands bounding upon the streets, or roads, or public squares so to be laid out by them as aforesaid, and file maps thereof designating the streets, roads, public places, etc., which they might lay out; and also to erect suitable and durable monuments wherever they might deem it necessary, the location thereof to be noted upon the maps, plans, or surveys filed by them; these maps, plans, and surveys of the said Commisioners, when filed, to be final and conclusive as to the location, width, and grades of the streets and roads, public squares and places exhibited thereon, as well in respect to the Mayor, Aldermen, and Commonalty of the City of New York as to the owners and occupants of lands, tenements and hereditaments within the boundaries aforesaid, or affected by said streets, roads, public squares and places, and in respect to all other persons whomsoever. The Commissioners were also directed to acquire title,

for and in behalf of the Mayor, Aldermen, and Commonalty of the City of New York, for the use of the public, to all or any of the lands required for the streets and roads and public squares and places so laid out by them or any portion thereof; and for the appointment of commissioners of estimate and assessment in respect thereto, on the confirmation of whose report, or whenever thereafter the Commissioners of Central Park should deem it to the public interest so to do, they should from time to time cause such of said streets, roads, squares, or places as they might designate for that purpose, to be regulated, graded, and improved as streets or as country roads, or in such manner as they might deem for the public interest, and might direct; and for that purpose, and in and about such regulating, grading, and improvements, the Commissioners of the Central Park should have, possess, and enjoy all the powers then or theretofore possessed, enjoyed, or exercised by the Mayor, Aldermen, and Commonalty of the City of New York as to other streets and roads, and by such Commissioners in respect to the Central Park, in said city, and such amount or portion of the expense of such regulating, grading, and improvements as the said Commissioners might deem equitable or might determine, not exceeding, as to the streets or roads, more than one mile in length, one-half of such expense as should or might be assessed upon the owners and occupants of the lands, tenements, and hereditaments and premises benefited thereby in respect of such lands, tenements, hereditaments, and premises.

For the purpose of carrying out the provisions of this act, the Comptroller of the City of New York was authorized and directed, whenever the Commissioners of Central Park should

so order, to create and cause to be issued, from time to time, in the name and in behalf of the County of New York, a public fund or stock, payable not more than fifty years from the date of issue thereof, which should be a charge upon the said county, and should be issued in such amounts, in such manner, and at such times as might be directed by resolution of the Commissioners of Central Park; and the moneys collected upon the assessments authorized in said act to be levied toward the payment of the expenses incurred in regulating, grading, and improving such streets, roads, public squares and places, were pledged and were to be applied toward the payment of said fund or stock.

By section 12 of this act it was declared that all powers authorized by an act passed April 7, 1860, appointing "commissioners for the laying out that portion of the City and County of New York lying north of One Hundred and Fifty-fifth street," etc., should then cease and determine, and the Commissioners of Central Park were vested with all the powers of such commissioners.

By Chapter 367 of the Laws of 1866, entitled "An Act relative to the powers and duties of the Commissioners of the Central Park," it was declared to be the duty of the Central Park Commissioners, immediately upon the passage of said act, to lay out and establish the grade of an avenue not exceeding one hundred feet in width, to be called the Avenue St. Nicholas, which avenue should commence at or near the intersection of the Sixth avenue and One Hundred and Tenth street, and run thence in the general direction of the Harlem lane till it intersected the Kingsbridge road, at or near One

Hundred and Twenty-fourth street, between Eighth and Ninth avenues; thence northerly, as near midway between Eighth and Ninth avenues as the said Commissioners might deem advantageous, to One Hundred and Thirty-fifth street; thence northerly, in the general direction of the said Kingsbridge road, to a point on One Hundred and Fifty-fifth street, about midway between Ninth and Tenth avenues; and such avenue should embrace such portions of the Harlem lane and old Kingsbridge road as the said Commissioners should deem it expedient to include therein, and it might depart from the line of the said Harlem lane and Kingsbridge road wherever the said Commissioners might deem it expedient. The Commissioners were also empowered to extend Manhattan street, in a southerly direction, to said avenue, and might widen said street to the width of one hundred feet, if they should deem it expedient; also, whenever they might deem it necessary, they were authorized to fix and establish or change the grade of any street or avenue, or any part of any street or avenue, that intersected any street, road, or avenue required by law to be laid out, established, regulated, or improved by them or under their direction; and whenever they had fixed, established, or changed, as required in this section, the grade of any street or streets or avenue, or any part of any street or avenue, it should be their duty to cause two maps or profiles of such street or streets or avenues, or parts thereof, showing the grade so fixed or established or changed by them, and the grades of such streets and avenues and parts thereof should, from the time of filing such maps in the proper offices, be established as shown in and by the same: further, that such grade should not thereafter be changed unless the owners of two-thirds of the land in lineal feet fronting upon any such

street or avenue, or of any part thereof, where such change might be proposed to be made, should first consent, in writing, to such change of grade, and file such consent in the office of the said Commissioners.

The Commissioners were directed to make maps, plans, and surveys of the avenue referred to, and of the widening and extension of Manhattan street, as in said law provided. These maps were declared to be final and conclusive as to the location and width of Avenue St. Nicholas, as to the widening and extension of Manhattan street, and as to the grades of said avenues and said streets. Further, that with respect to said Avenue St. Nicholas, and in respect to that portion of Seventh avenue lying north of the Central Park in said city, and with respect to all streets, avenues, roads, and portions of said city required by law to be laid out or improved under the direction of the said Central Park Commissioners, and with respect to the laying out, grading, regulating, sewering, paving, and improving the same, the said Commissioners of the Central Park should possess all the powers and perform all the duties then or theretofore possessed, enjoyed, or exercised by such Commissioners in respect to Central Park in the said city, and by the Mayor, Aldermen, and Commonalty of the City of New York, and the several departments of the city, in relation to the streets, avenues, and similar improvements thereof in other parts of said city.

Further, that all the powers conferred upon the said Commissioners respecting Sixth avenue, and other streets in said city, so far as the same were not inconsistent with the provisions of this act, were thereby made applicable to the said

portion of the Seventh avenue, and to the said Avenue St. Nicholas, and the improvement thereof, in like manner as if the provisions of the Sixth avenue act were incorporated in this act.

Further, that the Commissioners might do all the work required to be done by them by day's work or by contract, or in such manner as they might deem expedient. The Commissioners were further authorized to make an annual estimate for the maintenance and government of the Central Park of the sum of fifty thousand dollars in addition to the sum previously authorized for that purpose. The Commissioners were also authorized, whenever they might deem it expedient for the public interest so to do, for and in behalf of the Mayor, Aldermen, and Commonalty of the City of New York, to acquire title for the use of the public to any or all streets and avenues above Fifty-ninth street in said city, laid out on the map or plan of the City of New York by the Commissioners appointed in and by an act entitled "An act relative to improvements touching the laying out of streets and roads in the City of New York, and for other purposes," passed April 3, 1807.

By Chapter 550 of the Laws of 1866, entitled "An act to enable the Commissioners of the Central Park to make further improvements in the City of New York," it was declared to be the duty of the Commissioners to cause a survey to be made of all that part of the City and County of New York bounded northerly by One Hundred and Fifty-fifth street, easterly by the westerly line of the Eighth avenue north of Eighty-second street, and by the westerly line of Ninth avenue south of Eighty-second street, southerly by the southerly line of

Seventy-second street east of the Tenth avenue, and by the southerly line of Sixty-seventh street west of the Tenth avenue, and westerly by the Hudson river; and to prepare maps, plans, and profiles, embracing and showing such changes in the width, direction, and grades of the streets, avenues, and roads now laid out within the area above described, and in the pier and bulkhead lines then established, as, in their opinion, could be made with benefit to the property affected and to the public interests, and, also, the boundaries and grades of such streets, avenues, roads, and public squares and places as, in their opinion, could be laid out or discontinued with like benefit; and, to enable them to perform these duties, all provisions of the act of April 24, 1865, Chapter 565 of the Laws of that year, as were applicable thereto, should apply fully and completely to the powers and proceedings of the Commissioners under this act. The Commissioners were directed from time to time to report to the Legislature the maps, plans, and profiles above specified, with their proceedings under that act; and, further, no proceedings should be had or taken by any officer or body for any street opening or improvement within the area above described, except that the work under contracts already made and executed might be done and completed, and except such proceedings as the said Commissioners were authorized to take, until the Commissioners should have reported, and the Legislature should have determined the boundaries and grades of such streets, unless the Commissioners of the Central Park should concur with such body or officer in authorizing the opening or improvement of said street.

The authority of the Commissioners under this act expired on the 1st day of May, 1868.

By Chapter 757 of the Laws of 1866, entitled "An act to amend an act entitled 'An act authorizing the Mayor, Aldermen, and Commonalty of the City of New York to widen Broadway or Bloomingdale road between Fifty-seventh and Fifty-ninth streets, in the City of New York,' passed April 13, 1857," Broadway or Bloomingdale road, at its junction with Fifty-seventh and Fifty-ninth streets, in the City of New York, was laid out in a circular form, and there was established therein what is now known as the Eighth Avenue Circle. A provision was made for the acquiring of the title to the land necessary for the purpose, and it was declared that no part of that street, where so widened, should be used for any other purpose than that of a public street or public place; nor should any portion thereof be used as a carriage or hack stand; nor should any stall, stand, erection, or encumbrances of any kind be permitted thereon; and that the same and every portion thereof within the limits described should be kept free and clear for the passage of the public; and that its use should be under the exclusive control and management of the Commissioners of Central Park, who were thereby authorized to make such rules and regulations respecting its use, not inconsistent with the provisions of this act, as they might deem proper.

By Chapter 697 of the Laws of 1867, entitled "An act to alter the map or plan of certain portions of the City of New York, and for the laying out and improvement of the same," the Board of Commissioners of the Central Park were declared to have and possess exclusive power to lay out and establish streets, avenues, roads, public squares, or places of such width, extent, and direction as to them should seem most conducive to the public good; and also to designate and direct what part

or parts of any streets, avenues, roads, public squares and places then laid out should be abandoned and closed; and also to widen any street or avenue, or road, then laid out; and also to alter and amend the then grades of any street, avenue, or road that might be retained by them, and to establish new grades for all other streets, avenues, or roads that might be laid out and established, or retained by them, within that part of the City of New York which is bounded as follows: northerly by the southerly side of One Hundred and Fifty-fifth street, easterly by the westerly side of the Eighth avenue, southerly by the southerly side of Fifty-ninth street, and westerly by the Hudson river; and also within a space three hundred and fifty feet in width surrounding the Central Park. And also to lay out and establish new pier and bulkhead lines and the grades thereof, as to the Commissioners should seem proper for the requirements of commerce in said North or Hudson river, from Fifty-fifth street to Spuyten Duyvil creek, and on both sides of Spuyten Duyvil creek and the Harlem river to the line of the Third avenue; but such new pier and bulkhead lines, and the grades thereof, should not be deemed finally established until they had been approved by the Legislature.

The Commissioners were required to prepare maps or plans, showing all they should do under the authority of this act, and which maps or plans, excepting the pier and bulkhead lines, and the grades thereof, when made, were declared to be final and conclusive, with the same intent and effect as if the same had been laid out and established by the Commissioners appointed by the Act of April 3, 1807, entitled "An act relative to improvements touching the laying out of streets and roads in the City of New York, and for other purposes;" further, that all

streets, avenues, roads, public squares and places, and the grades thereof, or theretofore laid out and established within the district mentioned in the first section of this act, which should not be shown or retained on the maps to be filed by the Commissioners as above mentioned, should, from and after the time of the filing of said maps, cease to be or remain public streets, avenues, roads, squares, or places. And the abutting owners on such of said streets, avenues, and roads as had been opened or ceded, and as should be abandoned or closed under provisions of this act, should become and be seized in fee simple absolute therein to the centre line thereof in front of his or their lands respectively, except where such streets, avenues, or roads should on said maps be retained or taken for other public use, but subject, however, to any existing right of the Mayor, Aldermen, and Commonalty of the City of New York to maintain and keep in order any sewer, Croton water aqueduct or pipe, or the appurtenances thereof, that might have been constructed in any street, avenue, or road so closed. It was not necessary in making and filing these maps that they should show the laying out of all at one time, but the Commissioners were authorized to make maps of particular sections of the district referred to, and file the same, and thereupon their powers and duties in respect to that section ceased and determined; but at the conclusion of their duty they were required to file a map showing the entire work and exhibiting again thereon the various sections of which maps had previously been filed. Further it was declared that all such public squares and places which should be laid out or retained by said Commissioners as aforesaid should, immediately after the same were opened, be and remain under the control and management of the Commissioners of the Central Park as to the regulating, grading, paving, sewering, and otherwise improving

and maintaining the same, and all parts of any public street, avenue, road, or public square and place within a distance of three hundred and fifty feet from the outer boundaries of the Central Park, which place, and all others laid out as aforesaid, should at all times, after the opening of the same, be subject to such rules and regulations in respect to the uses thereof, and erections or projections thereon, as the said Board of Commissioners of the Central Park might make therefor; but they were not permitted to do any work in the matter of regulating, grading, paving, sewering, or curbing and guttering any of the streets, avenues, or roads within the district above mentioned, which any of the departments of government of the City of New York were then authorized by law to do. The Comptroller of the City of New York was thereby authorized and directed to deposit, to the credit of the Commissioners of Central Park, such sums of money as said Board should, from time to time, require for the payment of any work, services, or material furnished under any contract, proceeding, or otherwise, for laying out, opening, regulating, grading, or otherwise improving any street, avenue, road, public square or place, the construction or maintenance of which by law was or should be under the direction, control, and management of said Board of Commissioners of Central Park, specifying on what particular work or proceeding said money was required; and to enable said Comptroller to raise such money, he was authorized and empowered to borrow, from time to time, in the name of the Mayor, Aldermen, and Commonalty of the City of New York, by the issue of bonds bearing such rate of interest as he might deem proper, not exceeding seven per cent. per annum, such sum as should be necessary to pay all expenses incurred, or to be incurred, as aforesaid; and the proceeds of the assessments to be made for each

and every such work were pledged for the redemption of all bonds so issued, and the remainder or deficiency necessary for the redemption of such bonds, with the interest thereon, was to be certified by the Comptroller to the Supervisors, and be by the Supervisors included in the next annual tax levy, and applied to the redemption of such bonds and the interest thereon.

All acts in force relating to the laying out, widening, opening, grading, regulating, sewering, and otherwise improving streets, avenues, roads, and public squares and places in the City of New York, not inconsistent with the provisions of this act, are declared to be applicable thereto as if incorporated therein.

The powers of the Board of Commissioners of Central Park, under this act, to lay out, establish, and widen the streets, avenues, roads, public squares and places, and bulkhead aud pier lines, and to designate and direct what streets, avenues, roads, public squares, and places shall be abandoned and closed, will cease on the first day of May, 1872.

By Chapter 288 of the Laws of 1868, entitled "An act approving the lines and grades established under authority of Chapter 697 of Laws of 1867, and amending said Chapter 697, entitled 'An act to alter the map or plan of certain portions of the City of New York, and for the laying out and improving of the same,' passed April 24, 1867," the new pier and bulkhead lines, and the grades thereof, laid out and established by the Board of Commissioners of Central Park in the North or Hudson river, from Fifty-fifth street to Spuyten Duyvil creek, and on both sides of Spuyten Duyvil creek and the Harlem river, from the North or Hudson river to the line of the Third avenue, as the same are shown on the map entitled "Map

showing the new pier and bulkhead lines laid out and established by the Board of Commissioners of Central Park, pursuant to Chapter 697 of the Laws of the State of New York, passed April 24, 1867," dated New York, November 19, 1867, and signed by John J. Serrell, were finally established and approved by the Legislature, and it was declared to be unlawful to fill in with heavy stones or other solid material in the waters of the port of New York, beyond the new bulkhead lines thereby established; nor shall it be lawful to erect any structure outside of or exterior of the said bulkhead lines, except piers, which piers shall not exceed seventy feet in width respectively, with intervening water spaces of at least one hundred feet; nor shall it be lawful to extend such pier or piers beyond the new pier line thereby established. The provisions of section 2, of Chapter 522 of Laws of 1860 were thereby made applicable to all piers, bulkheads, or other structures that may be built under and by virtue of this law. The Commissioners of Central Park were further authorized, if they deemed it necessary for the public interests, to alter and amend any part or parts of the bulkhead lines in Spuyten Duyvil creek and the Harlem river, and upon their filing in the office of the Secretary of State a map or maps showing any alterations that they may make, the bulkhead lines so shown on such map shall become and be established bulkhead lines, and the provisions of this act shall be applicable thereto; and further, the Board of Commissioners of Central Park are authorized and are declared to have exclusive power to regulate, grade, pave, sewer, curb and gutter, and otherwise improve, direct, manage, control, and maintain such parts of all streets, avenues, and roads as bound any public square or place laid out or retained by the said Commissioners under the provisions of this act, in that portion of the district

therein referred to which lies west of the Eighth avenue, in the same manner and to the same extent, and with the same power, as the said Commissioners then had and possessed with respect to the improvement of the Sixth and Seventh avenues in said city, north of the Central Park.

By Chapter 853 of the Laws of 1868, denominated "City Tax Levy," the Board of Central Park Commissioners were authorized to estimate a further sum of fifty thousand dollars per annum, for the maintenance and government of the Central Park.

By Chapter 350 of the Laws of 1869, entitled "An act to authorize the erection of a soldiers' and sailors' monument in the City of New York, and to authorize the raising of money therefor," the Board of Supervisors of the County of New York were authorized, upon the request of the Commissioners of the Central Park of the City of New York, to be expressed in writing, and not otherwise, to make such appropriation, not exceeding thirty thousand dollars, as the Commissioners may think proper to defray the expenses of erecting a monument in said county, to commemorate the services of the soldiers and sailors of New York County in the war for the preservation of the Union, the same to be located and erected under the charge and direction of the Commissioners. This amount was directed to be levied upon the real and personal property liable to taxation for the purpose authorized.

By Chapter 599 of the Laws of 1869, entitled "An act authorizing the erection and maintenance of an observatory in the City of New York," the Board of Commissioners of Central Park

were authorized to erect and establish, conduct and maintain, in the Central Park, in said city, a meteorological and astronomical observatory and museum of natural history, and a gallery of art, and the buildings therefor, and to provide the necessary instruments, furniture, and equipments for the same. The moneys necessary for this purpose, and for the necessary instruments, furniture, and equipments, to the extent of a sum the annual interest of which shall not exceed fifteen thousand dollars, were authorized to be raised, and in addition to so much of the moneys then authorized for the improvement of the Park as said Board might elect therefor, to be expended in the same manner as moneys for the construction of said Park then raised under the then existing laws; and the moneys necessary for the maintenance of said observatory, museum and gallery, buildings, instruments, and equipments, not to exceed thirty thousand dollars per annum, should be provided and expended in the same manner as moneys for the maintenance of the said Park were then raised and expended under existing laws.

By Chapter 826 of the Laws of 1867, entitled "An act for the improvement of certain parts of Westchester County, Harlem river, and Spuyten Duyvil creek," it was made the duty of the Board of Commissioners of Central Park to cause a proper survey to be made of all that part of the County of Westchester lying west of the New York, Harlem and Albany Railroad, and south of the southerly line of the village of Yonkers, and a line in continuation thereof, and to devise and prepare maps, plans and profiles embracing and showing such changes in the location, width, courses, windings, and grades of the streets, avenues, and roads then laid out within the area above described, as in their opinion may be made with benefit to the property

affected and to the public interest; and also the location, width, courses, windings, and grades of such streets, avenues, roads and public squares and places as, in their opinion, can be laid out or discontinued with like benefit, including plans for the proper sewerage and drainage of the land within said area, and for the supply of pure and wholesome water therefor; and also for the improvement of Harlem river and Spuyten Duyvil creek, and the plan and location of all bridges, tunnels, and other means of transit across or under said river and creek; and they were authorized to enter upon all the lands, tenements, and hereditaments referred to, and make surveys in the performance of their duties under this act, and to report to the Legislature at its next session the maps, plans, and profiles above specified, so far as they may be able to complete the same, with such field notes and explanatory remarks as the nature of the subject may require, together with a statement of all their proceedings under this act.

No proceeding was to be had or taken by any officer or body for any street opening or other public improvement within the area above described (except that work under contracts already made and executed may be done and completed) until the said Board of Commissioners shall make the report thereby required, and the Legislature shall have taken official action upon the said report, unless the said Board of Commissioners shall concur with the officer or body in authorizing such opening or improvement. The authority of the said Board of Commissioners under this act expired on the 1st day of January, 1871. For the payment of all expenses incurred under this act, the Treasurers of the Counties of New York and Westchester, respectively, were required to pay over to the proper Board

such sums of money as should be certified by the said Boards, respectively, as necessary to be raised in the said counties, respectively, to carry out the provisions of the act, and such sums of money were to be raised and collected by the Supervisors of the said counties, respectively, in the manner in which other moneys in said counties are raised and collected, except that in the County of Westchester it was made the duty of the Supervisors of the Towns of Yonkers, West Farms and Morrisania to assess the sums of money specified by the Board of Commissioners of Central Park, upon the pieces and parcels of land in each of said towns within the area described, ratably, in accordance with the assessed valuation of the said pieces and parcels of land, and said sums of money were to be included in the assessment rolls of said towns in separate columns. The Commissioners were directed by this law not to interfere with any of the duties imposed upon certain Commissioners of the Town of Morrisania appointed to lay out, open, and close streets, roads, and avenues in that town, except with the consent or in conjunction with those Commissioners.

By Chapter 689 of the Laws of 1869, entitled "An act to establish a public place in the City of New York," that triangular piece of ground bounded westerly by the Ninth avenue, easterly by the Boulevard, and southerly by Sixty-third street, is designated as a public place, and directed to be thus laid down and established.

By Chapter 44 of the Laws of 1870, entitled "An act to alter the map or plan of the City of New York," all that portion of One Hundred and Thirty-sixth street laid down on the Commissioners' map of the city, lying between the easterly

line of the Boulevard and the centre line of the Bloomingdale road, as it existed at the time of the enactment of the law creating the Boulevard, was by this law declared to be a public street of the same width and dimensions as fixed by the Commissioners of the Central Park on their map, and they were directed to proceed and open the same, and acquire title thereto, on behalf of the city.

By Chapter 593 of the Laws of 1870, entitled "An act in relation to regulating and grading the Eighth avenue, in the City of New York," the grade of that avenue, from Fifty-ninth street to One Hundred and Twenty-second street, was established, by which the grade before that time existing was very materially altered, so as to require the almost entire remodelling of the westerly side of Central Park, the grade at some places being from sixteen to twenty feet beyond that now existing, and the westerly side of the Park must necessarily be adapted thereto.

By Chapter 626 of the Laws of 1870, entitled "An act to alter the map or plan of a portion of the City of New York, and for the improvement of the same," the Department of Public Parks was declared to have full and exclusive power to lay out and establish, of such width, extent, and direction as to them shall seem conducive to the public good, a broad street or avenue to be designated the "Eastern Boulevard," or such other name as shall be determined, together with such other streets or avenues as shall be deemed proper to connect such Boulevard with Central Park and the East river or otherwise, and also to widen, or otherwise alter, retain, or discontinue any avenues or streets now laid out or designated on the map

or plan of the City of New York, and also to lay out and establish public squares or places along the line and contiguous to said Boulevard or otherwise; and also to alter, amend, and establish the grades of such new streets or avenues, and to alter or amend the present grades of any street, avenue, or road that may be retained by them within that portion of the City which is bounded southerly by the southerly side of Fifty-seventh street, and westerly by the westerly side of Fifth avenue, from Fifty-seventh street to One Hundred and Tenth street, and by the easterly side of Sixth avenue, from One Hundred and Tenth street to the Harlem river, northerly by the Harlem river, and easterly by the Harlem and East rivers.

The Department was directed to enter upon the property within the space indicated, and prepare maps and plans of what they shall do under this act, and to file the same as therein provided. The alterations that they shall make within the boundaries aforesaid, authorized by the act, shall have the same effect as if the same had been established and laid out by the Commissioners under the act of 1807, and all streets, avenues, roads, public squares and places, and the grades theretofore laid out and established within the district mentioned, which shall not be retained or shown on the map to be filed with the Department, shall, from and after the time of the filing of the map, cease to be and remain public streets, avenues, roads, squares and places, and the abutting owners on such streets, avenues and roads as have been opened or ceded, and as shall be abandoned or closed under the provisions of this act, shall become and be seized in fee simple absolute therein, to the centre line thereof in front of his or their lands respectively, except where such streets, avenues, or roads shall

on said maps be retained or taken for other public use, but subject, however, to any existing right of the Mayor, Aldermen and Commonalty of the City of New York to maintain and keep in order any sewer, Croton water acqueduct or pipe, or the appurtenances thereof, that may have been constructed in any street, avenue or road so closed.

The Department was authorized to file maps of particular sections within the boundaries mentioned from time to time, and at the close of their work to make a map showing such changes. Provision was made in this act against any interference with the powers and duties of the Department of Public Works in relation to the regulating, grading, sewering, curbing, guttering, or flagging of such roads, streets, and avenues, except as to said Eastern Boulevard and the public squares and places laid out or retained under this act; and the powers therein conferred upon the Department of Public Parks are to be deemed to extend only to such Eastern Boulevard and public squares and places.

By Chapter 697 of the Laws of 1870, entitled "An act to provide a plan for the improvement of portions of the Counties of Westchester and New York, and to provide facilities for communication between the said counties," the Department of Public Parks was declared to have and shall exercise all the powers and duties conferred upon the Commissioners of Central Park in and by Chapter 826 of the Laws of 1869, above referred to, in respect to the improvement of the County of Westchester, Harlem river, and Spuyten Duyvil creek, and this Department was substituted for those Commissioners. It was also directed to prepare maps, plans, and profiles of the district or portion

of Westchester County referred to in that act, within one year from the passage thereof, with field notes and explanations, as may be deemed expedient, and providing that from the filing thereof the same shall be final and conclusive as to all streets, avenues, public squares, and places laid out thereon, and all roads retained on those maps shall be retained and established; and all roads discontinued and closed shall thereupon and thenceforth be discontinued and closed accordingly. The Department was also directed to locate and establish tunnels, bridges, and other means of transit across or under Harlem river and Spuyten Duyvil creek, and lay the same down upon the map, and thereupon and thenceforth they shall be established and located accordingly.

Provision was made for obtaining means to build or construct these improvements by the issuing of bonds of the Counties of New York and Westchester, and for levying by tax upon the several towns where the improvements were authorized to be made the amount of the expense of the necessary surveys in order to complete the improvements therein authorized.

By Chapter 290 of the Laws of 1871, entitled "An act in relation to the powers and duties of the Board of Commissioners of the Department of Public Parks, including provision for the several public parks, squares, and places, and other works under the jurisdiction and direction of said Department in the City of New York," the Comptroller of the City of New York, in the name and on behalf of the Mayor, Aldermen, and Commonalty thereof, is authorized and directed to create and issue, at such times and in such amounts and in such manner as shall be deemed expedient and necessary for the improvement and re-

gulation of the parks, including Central Park, City Hall Park, Morningside Park, Madison Square, Reservoir Square, Washington Square, Tompkins Square, the Battery, and the several parks and places which by law now are or hereafter may be under the control and management of the Department of Public Parks; and also for the construction of a meteorological and astronomical observatory in the Central Park; and to carry out the object of the act, a public fund or stock, to be denominated "The City Parks Improvement Fund," to an amount not exceeding a sum of which the annual interest (at the rate of interest at which the stock or fund shall be issued) will be two hundred thousand dollars.

The stock is redeemable in thirty years from the issuing thereof, and all the parks, squares, and places in New York City now created or hereafter to be created, are thereby specifically pledged for the redemption of the same and every part thereof. The Department is also therein authorized to construct, erect, and maintain in and upon that portion of Central Park formerly known as Manhattan square, or any other public parks, squares, or places in the city, suitable fire-proof buildings for the purpose of establishing and maintaining therein, under suitable rules and regulations to be prescribed by the Board of Commissioners from time to time, a museum and gallery of art by the Metropolitan Museum of Art, or other institutions of like character. The Department was also authorized to erect a suitable fire-proof building for the purpose of establishing and maintaining therein a Museum of Natural History by the American Museum of Natural History, or other institutions of like character. The aggregate cost of these buildings it was provided shall not exceed a sum of which the annual interest thereon will be

seventy thousand dollars. The stock to be issued for this purpose is denominated "The Museum of Art and Natural History Stock."

The Comptroller is also directed to issue such additional bonds, of a public fund or stock to be denominated "City Improvement Stock," as may be necessary to provide the funds to enable such Comptroller to pay any and all assessments and expenses imposed or that may be imposed upon the Mayor, Aldermen, and Commonalty of the City of New York, by reason of laying out, regulating, and grading or improving any and all streets, roads, avenues, and public parks, squares, and places that are now, or that hereafter may be, under the jurisdiction of the Department of Public Parks, and out of such fund or stock to pay such assessments and expenses. The interest on the stock is directed to be levied by the Supervisors annually.

The Board of Commissioners was also authorized to organize, and by and through its President to appoint, a force to be known as the keepers of Central Park and the several public squares, parks, and places in the City of New York, to consist of such number of men as the Board from time to time may deem necessary, to preserve order in these parks, which force shall be under the exclusive control and direction of the Board, and may be discharged at pleasure; each member of the force in virtue of his appointment to be invested with the same powers within the limits of the parks, squares, and places, and that portion of the streets and avenues of the City of New York bounding and adjoining the same or lying adjacent thereto, as if invested with a similar rank in the Police Department of the City of New York. Each member is also required to take

an oath as prescribed by said Board, and to be allowed compensation. Under special circumstances the President is authorized to appoint an additional force for the preservation of order, and such temporary force is to have all the powers of the park-keepers. The Board is declared to have full and exclusive power to govern, manage, and direct the said several public parks, squares, and places, to pass ordinances for the regulation and government thereof, and generally in regard thereto possess all the power and authority heretofore possessed by the Mayor, Aldermen, and Commonalty of the City of New York, in respect to the public parks, squares, and places in the city; and all persons offending against the ordinances thus established, shall be deemed guilty of misdemeanor and punished accordingly, as therein provided.

The Board of Commissioners is also vested with exclusive power and control over all that portion of Battery place lying south of the line of the south side of Pier No. 1, North river, and east of the easterly line of West street, extended in a southerly direction; and also of the waters of the North river, in front of that portion of the Battery at Battery place and to the extent of two hundred feet westerly therefrom. It is also authorized to erect, construct, and maintain on that part of Battery place and over and on the lands or water aforesaid, a proper improvement, consisting of suitable buildings, docks, piers, or places for the accommodation of small boats engaged in the business of attending on the shipping lying in the river or bay of New York; also to make, prescribe, and enforce, from time to time, such rules and regulations for the use and enjoyment of the same as the Commissioners shall deem most meet and proper for the public interest. The necessary expense of constructing and maintaining

such improvements is to be deemed and taken as part of the expense of improving and maintaining the Battery; and the moneys therefor are to be raised and expended in like manner as other moneys for the improvement of the Battery might be. The Commissioners are also authorized to prescribe and enforce rules and ordinances for the control and government of small boats using the water-basin at the south end of the Battery, now being completed by the said Commissioners.

In this Act it is also declared that the public square or place commonly known as Fort Washington Park, located on the Hudson river, and extending to Kingsbridge road, shown upon the map of the Commissioners of Central Park, and laid down thereon as a public square or place, be discontinued, and the Commissioners of the Department of Public Parks are directed to not show the same upon the maps of that portion of the city hereafter to be filed upon the completion of the whole work to be done within that section or area. It was also in this Act declared that hereafter, in any opening or improvement of any public square, place, or street, or avenue in the City of New York, it shall not be lawful to lay or impose any assessment whatever on any public square or place, street, road, or avenue; that all assessments which may properly be payable by the Mayor, Aldermen and Commonalty, are directed to be assessed against them in a gross sum in each and every proceeding; further, it was declared that the street or avenue laid out by the Commissioners of the Central Park lying intermediate the Avenue St. Nicholas and the Tenth avenue, extending from the north side of One Hundred and Thirty-sixth street to the southerly side of One Hundred and Thirty-seventh street, be discontinued, and in lieu thereof, the Department has

power to lay out and establish a new street or avenue, and the grades therefor, intermediate the said Avenue St. Nicholas and the Tenth avenue; and the said new avenue, when thus laid out and shown upon the maps to be filed hereafter, shall be considered as one of the streets of the city.

By the concluding section of this Act, the Board of Commissioners of the Department of Public Parks are declared to have and possess exclusive power to acquire title in the name and on behalf of the Mayor, Aldermen, and Commonalty of the City of New York, in and to all public streets, avenues, roads, public squares and places laid out or to be laid out, in all that part of the City of New York lying northerly of Fifty-ninth street, and in and about all proceedings therein now or hereafter to be commenced, and all proceedings subsequent thereto, as to which the Board shall have and possess all the powers and perform all the duties now by law conferred upon or authorized to be performed by the Mayor, Aldermen, and Commonalty of the City of New York.

By Chapter 534 of the Laws of 1871, entitled "An act relative to the improvement of certain portions of the Counties of Westchester and New York, including provisions for communication between the said counties, and for improving the navigation of Harlem river and Spuyten Duyvil creek," it was declared to be the duty of the Department of Public Parks to cause a proper survey to be made of all that part of the County of Westchester lying south of the southerly line of the village of Yonkers and a line in continuation thereof easterly to Hutchinson river or creek, including that part of the said county lying south of said line west of said river; and to devise and

prepare maps, plans, and profiles, showing such changes in the location, width, courses, windings, and grades of the streets, avenues, and grades now laid out within the area designated, as in the opinion of the Commissioners can be made with benefit to the property affected and to the public interest; and also the location, width, courses, windings, and grades of such streets, avenues, roads, and public squares and places, as in their opinion can be laid out or discontinued with the like benefit, including plans for the proper sewerage of the land within the area for the supply and distribution of pure and wholesome water therefor, and also for the improvement of the navigation of the Harlem river and Spuyten Duyvil creek, and the plan and location of all bridges or other means of transit across or under said creek, and the plans and locations, so far as the Board may deem practicable, of all railroads and similar modes of transport, to be operated by steam or other power, and which may hereafter be authorized by law to be constructed; and the plans and location of the new pier and bulkhead lines, and portions thereof on both sides of the Harlem river, from the line of the Third avenue, in the City of New York, to the East river or Long Island Sound; also the plan and location of pier and bulkhead lines and the grades thereof, in and along all other tide-waters bounding and adjacent to said area. Maps are to be filed with field notes and any explanations that may be deemed expedient. Upon the filing thereof they are declared to be final and conclusive, and all such streets, avenues, roads, public squares and places, and such locations, widths, courses, windings and grades, together with such plans for sewerage and drainage, and the plans for the supply and distribution of pure and wholesome water (except as to which the Legislature by a subsequent part of the Act were required to confirm before becoming final), and

plans, maps, grades, and locations of railroads, and similar modes of communication and transportation, and the plans and locations of the pier and bulkhead lines, and the grades thereof, thereon shown, laid out, retained, or established, shall thereupon and thenceforth be retained and established accordingly, and all streets, avenues, roads, and public squares and places thereon discontinued and closed, shall thereupon and thenceforth be discontinued and closed accordingly, and the bridges, tunnels, and other means of transit across or under Harlem river and Spuyten Duyvil creek, as therein planned, located, and shown, shall thereupon and thenceforth be planned and located accordingly. And no proceeding shall be had or taken by any officer or body for any street opening, or any public improvement within the area described, or within the tide-waters adjacent thereto (except that work under contract, already made may be done and completed), until the Board of Commissioners of this Department shall have so filed such maps; provided, however, that this Act shall not be construed as interfering with any improvements which have been authorized by acts of the Legislature in the district aforesaid. Upon the filing of such map, the officers and bodies authorized to make other improvements of like character in the towns within the area shown thereon, shall have power to open, extend, widen, regulate, grade, drain, and sewer all such streets, roads, avenues, and public squares and places as shall be as aforesaid retained or established.

The Department was authorized to file maps showing the improvements proposed to be made in certain sections of the district referred to, but upon the completion of the work it is required to make and file a map showing the whole of the improvements contemplated and authorized. The expenses to be

incurred under this Act are required to be paid by the Treasurers and Comptrollers of the Counties of New York and Westchester respectively, moneys therefor to be provided by the Supervisors of those counties respectively, except that the several towns in Westchester County are to bear the particular portion of such expense incurred in making the necessary investigations for the improvements of those towns respectively, and no greater sum than ten thousand dollars shall be collected for the purpose from either of those towns in any one year.

It was further provided that the Board of Commissioners of the Department of Public Parks, on behalf of the City of New York, and the Chairman of the Board of Supervisors of Westchester County, and the Supervisors of the towns which include the Westchester County end of such tunnel, or any such means of transport, or the majority of them, on behalf of the County of Westchester, shall have full power and authority to build and construct, by contract or otherwise, as they shall deem most expedient, any and all bridges, tunnels, and other means of transportation across or under the Harlem river or Spuyten Duyvil creek, which shall be planned or located as aforesaid; and they are authorized to forthwith commence the building or construction of a suspension bridge north of the bridge known as "The High Bridge," and not more than one half mile therefrom; also, that a bridge or tunnel may be planned or located near or at the northerly end of Seventh avenue, in this city; and next thereafter that a bridge or tunnel may be planned or located near the northerly end of Fifth avenue, in this city; provided, however, that not more than two such bridges, or one bridge and one tunnel or other means of transit, shall be in course or process of being built or constructed at the same time. The

same officers are authorized to build or construct, by contract or otherwise, any and all improvements of the navigation of the Harlem river and Spuyten Duyvil creek, which may be planned or located as before provided; and the Department was directed to maintain and keep in order and repair all bridges now existing across the Harlem river so far as the Board shall consider it advisable, the expense of such building, and construction, maintenance, and repairing of all such bridges, tunnels, and other means of transit, such improvements of Harlem river and Spuyten Duyvil creek to be borne by the Counties of New York and Westchester in proportion to the jurisdiction of each, and the line of such jurisdiction shall be established and defined by the Board of Commissioners of this Department; provided, however, that such portions of the improvement of the navigation in said river and creek, and the works appertaining to the same within the County of Westchester, as the officials above referred to shall determine may be advantageously built and constructed without interfering with or impeding in any manner the other portions of the improvement of the navigation of said river and creek, and works appertaining to the same within and adjacent to the County of New York, may be built and constructed solely by the officers and bodies authorized by law to make other improvements of a like kind in the towns of the County of Westchester, adjacent to that in which such works may be situated. The Treasurer or Comptroller of each of said counties shall issue and deliver to the person authorized by this Department, and the other officials referred to, to receive the same, bonds of their counties, respectively, for such sum as may be necessary to be raised for and on account of such bridges, tunnels, or other means of transportation and improvement above referred to. The Department is directed to make a report of

the survey and plans authorized and directed by this Act to be made within the area specified, for the supply and distribution of pure and wholesome water, to the Legislature at its next session after the completion of the same, together with field notes, explanatory remarks, and such recommendations as the nature of the subject may require, as to which works the plans relating thereto, exterior to the area therein described, shall not be finally conclusive nor established until the Legislature shall have approved the same. During the progress of all the works so authorized, the Commissioners are also directed to make annual reports to the Legislature of their proceedings under this Act.

The powers and duties prescribed by this Act are declared not to apply to the streets, roads and avenues laid out in the town of Morrisania by the Commissioners appointed for that purpose, except such portions and grades thereof as are located and situated along and adjacent to the Harlem river, and as the Commissioners of this Department may deem necessary for the public interest to modify, change or discontinue for the purpose of facilitating plans, locations, proper connections and approaches, and the construction of bridges, tunnels, and other means of transit across or under the said river and creek. The Board of Commissioners of the Department of Parks is declared to have full and exclusive power to lay out, regulate, govern, manage, and direct all the works, buildings, and constructions authorized to be built and constructed by this Act, and to pass ordinances for the regulation, control, and government thereof, and of the various works and constructions of the kind, nature, and character therein referred to, within the area described, and upon or adjacent to the Harlem river or Spuyten Duyvil

creek, and imposing and enforcing proper penalties and fines for the violation of such ordinances, and defining methods for the enforcement and collection thereof, and punishing any person or corporation violating or offending against the same. Except as therein provided, no public or other works shall be constructed or carried on within the limits of the area aforesaid, or within the County of New York, that shall interfere with the exercise of the powers and duties conferred by this Act, without the consent of the Commissioners, until their said powers and duties shall have been discharged. Further, it was declared that in reference to any street, avenue, or road now laid out or established, or which may be hereafter laid out or established under the provisions of this Act, which shall cross the line, road or track of any railroad now or hereafter to be constructed, or now authorized by law to be constructed, the railroad company owning the same shall change or modify the grade of their railroad, as may be directed by the Commissioners of this Department, and in such manner that it shall pass above or under the grade of such street, avenue, or road, and at such distance from the same as will permit of engines or cars moving upon said railroad to pass securely above or under said street, avenue or road, and as not to interfere with, impair, or endanger at any time the free and lawful use thereof. Further, that whenever any railroad shall be so adapted or constructed as to pass above any such street, avenue or road, it may construct and maintain, under the direction of the Commissioners of this Department, a safe and convenient bridge for such road, and such bridge shall be so constructed as to screen all engines and cars when passing over it from view from the street, avenue or road, and the railroad company is authorized to make and maintain such changes in the grades of their road adjacent to the cross-

ings of streets, avenues and roads as aforesaid, as may be necessary for the convenient use of the road, and as the Board of Commissioners may authorize and direct. Provision was also made for acquiring title to lands in Westchester County, and also for lands within the County of New York, for the purpose of the improvements authorized by this Act. Finally, the Board of Commissioners of this Department were authorized to ordain and establish such rules, ordinances, and regulations respecting the fencing and covering of any part of the tracks of any railway in the County of Westchester for any distance which said Board shall consider expedient or proper on each side of the central bridge crossing Harlem river in the County of Westchester, and also at such other point or place, or points or places, in any road or avenue hereafter to be established in such County of Westchester, crossed by any railway by its rail-tracks, as shall be considered by said Board expedient for the protection and safety of travel on such road or avenue, such ordinances, rules and regulations prescribing, declaring and ordaining penalties for any violation thereof, and for not conforming thereto or therewith, shall be enforced by all courts against any person or railway company or corporation offending or violating the same, or for not acting in conformity therewith; actions for the enforcement or violation of such rules or ordinances to be brought in the name of the people of the State of New York, by and under the direction of this Department. All moneys received from the same over and above the costs and expenses thereof are by the Act directed to be received by the Department and paid over by it for the benefit of the poor of the town wherein the violation or offence sued for may have occurred.

From this statement of the various acts of legislation relating to this Department and to the late Board of Central Park Commissioners, which by law are made applicable to the Department, it will be seen that the powers, duties, and jurisdiction of the Department of Public Parks in the City of New York are varied, extensive, and exceedingly important, not only to the interests of the people as property owners, but to the welfare of all classes who now or may hereafter reside within the district committed to the care of the Commissioners having the control of the Department. Not only do their powers, duties, and jurisdiction extend over all the city parks and public squares, over the streets, boulevards and avenues above Fifty-ninth street, upon the Island of New York; to the improvement of the Harlem river and Spuyten Duyvil creek; and to the laying out of the wharves on each side thereof; but also to a large portion of the County of Westchester, which in all probability will at a future day form and become part of the Corporation of the City of New York.

Rockwood Phot

Shakspeare.

By. J. Q. A. WARD.

Report of the Comptroller.

REPORT OF THE COMPTROLLER.

Hon. PETER B. SWEENY,

President of the Department of Public Parks:

The Comptroller having charge of the Bureau of Accounts submits the following report of the transactions therein from the organization of the Department on the 20th day of April to the 31st day of December, 1870, inclusive:

OPERATIONS AND CONDITION OF THE BUREAU OF ACCOUNTS.

The cash balance transferred from the Board of Commissioners of the Central Park to the credit of the Department of Public Parks, April 20, 1870, was	$7,313 83
The total receipts from April 20 to December 31, 1870, were	2,291,815 07
	$2,299,128 90
Total disbursements from April 20 to December 31, 1870	2,217,100 72
Cash balance, December 31, 1870	$82,028 18

SUMMARY OF RECEIPTS AND DISBURSEMENTS.

CENTRAL PARK, CONSTRUCTION ACCOUNT.

The total receipts from April 20 to December 31, 1870, are as follows:

From issue of stock by the City of New York			$516,600 00
interest on deposits to October 1			1,173 60
			$517,773 60
To balance April 20, 1870		$49,611 12	
The expenditures on this account from April 20 to December 31, 1870, are as follows:			
Salaries of officers, clerks, engineers, architects, draughtsmen, etc	$15,647 45		
Labor — amount paid laborers, mechanics, cartmen, teams, etc	184,936 61		
Contract work on buildings, wall masonry, paving, etc.	95,084 42		
Carried forward	$295,668 48	$49,611 12	$517,773 60

Brought forward	$295,668 48	$49,611 12	$517,773 60
Materials of construction and tools	113,473 38		
Trees and plants	2,124 86		
Stationery, printing and drawing materials	1,782 22		
Incidental expenses	3,592 50		
		416,641 44	
			466,252 56
Balance, December 31, 1870			$51,521 04

The total receipts on this account from May 1, 1857, to December 31, 1870, are as follows:

From issue of stock by the City of New York	$6,327,297 48
sale of buildings on the park	6,155 87
payment of lost tools	451 23
rent of buildings	153 33
exhibition of plans	294 85
sales of grass to December 31, 1864	2,213 25
sales of wool to December 31, 1865	222 40
interest on deposits	29,935 26
pound receipts to December 31, 1864	1,199 87
license for the sale of refreshments, hire of skates, etc	7,175 61
sale of old materials	2,467 18
sale of time-books	7 75
payment of labor and materials furnished by Park	4,655 94
premium on exchange gold for silver	23 52
	$6,382,253 54

The expenditures to December 31, 1870, are as follows:

From May 1, 1857, to January 1, 1858	$77,881 41	
January 1, 1858, to January 1, 1859	507,487 86	
January 1, 1859, to January 1, 1860	1,179,246 47	
January 1, 1860, to January 1, 1861	878,354 95	
January 1, 1861, to January 1, 1862	479,163 66	
January 1, 1862, to January 1, 1863	461,540 32	
January 1, 1863, to January 1, 1864	331,871 60	
January 1, 1864, to January 1, 1865	452,590 23	
January 1, 1865, to January 1, 1866	366,915 38	
January 1, 1866, to January 1, 1867	250,983 17	
January 1, 1867, to January 1, 1868	199,264 06	
January 1, 1868, to January 1, 1869	249,822 12	
January 1, 1869, to January 1, 1870	340,265 91	
January 1, 1870, to January 1, 1871	555,345 36	
		6,330,732 50
Balance December 31, 1870		$51,521 04

CENTRAL PARK, MAINTENANCE ACCOUNT FOR THE YEAR 1869.

To balance, April 20, 1870	$27,357 08
Received from the City of New York for the above deficiency	27,357 08

CENTRAL PARK, MAINTENANCE ACCOUNT FOR THE YEAR 1870.

To balance April 20, 1870	$25 79

The expenditures on account of maintenance, from April 20 to December 31, 1870, thus far, are as follows:

	Labor.	Materials.	Total.	
Roads—Cleaning	$28,570 53	$73 70	$28,644 23	
Roads—Repairing	9,030 07	26,540 36	35,570 43	
Bridle roads—Cleaning	1,419 84	.....	1,419 84	
Bridle roads—Repairing	74 55	24 15	98 70	
Walks—Cleaning	10,732 95	.....	10,732 95	
Walks—Repairing	5,804 84	10,106 78	15,911 62	
Plantations	17,150 78	2,347 08	19,497 86	
Turf	15,244 84	597 50	15,842 34	
Water	362 57	.....	362 57	
Ice	5,061 60	740 97	5,802 57	
Irrigation	10,236 86	633 11	10,869 97	
Transverse roads	672 98	.....	672 98	
Masonry	3,399 19	592 33	3,091 52	
Tools	3,307 80	1,511 28	4,819 08	
Surface drainage	2,304 02	.....	2,304 02	
Buildings	11,549 84	1,557 55	13,107 39	
Manure	277 00	.....	277 00	
Park and gate-keepers' wages, uniforms, etc	56,070 33	684 62	56,754 95	
Special park-keepers' wages	4,955 97	.....	4,955 97	
Music	4,590 00	.....	4,590 00	
Stationery, printing, advertising, etc.	10,806 06	.....	10,806 06	
Seats, signs, etc	481 73	263 87	745 60	
Miscellaneous	11,458 12	1,518 83	12,976 95	
Proportion of salaries	10,000 00	.....	10,000 00	
				270,754 60
				$270,780 39

Received from the City of New York for maintenance of the Park from April 20 to December 31, 1870	$240,000 00	
from sale of trees and plants to city parks	13,353 75	
from sale of grass	1,833 50	
from sale of old materials	641 16	
from license to sell refreshments	4,514 52	
from license to hire boats for the year 1869	1,000 00	
from pound receipts	164 30	
from rent of house on Central Park	150 00	
for removing broken vehicles	141 00	
By balance December 31, 1870	8,982 16	
		$270,780 39

BOULEVARD, FROM THE CIRCLE AT FIFTY-NINTH STREET TO ONE HUNDRED AND FIFTY-FIFTH STREET.

(*Chapter* 565 *of the Laws of* 1865.)

Received from the City of New York for regulating and grading the "Boulevard," from April 20 to December 31, 1870		$525,000 00
Received from sale of stone		28 00
Received in payment for shovel lost		1 25
		$525,029 25
To balance April 20, 1870	$5,467 02	

The expenditures on this account from April 20 to December 31, 1870, are as follows:

Labor account—amount paid laborers, rockmen, carts, teams, etc.	353,060 89	
Materials of construction and tools	60,002 30	
Stone-breaker gangs	59,356 50	
Surveys, estimates, etc	3,237 22	
Stationery, printing, and books of account	2,406 17	
Incidental expenses	3,424 00	
Proportion of salaries	10,000 00	
		496,954 10
Balance December 31, 1870		$28,075 15

SEVENTH AVENUE, FROM CENTRAL PARK TO HARLEM RIVER.

(*Chapter* 275 *of the Laws of* 1864.)

Balance April 20, 1870	$22,021 50
Received from the City of New York for regulating and grading the Seventh avenue, from April 20 to December 31, 1870	100,000 00
By balance, December 31, 1870	5,211 05
	$127,232 55

The following have been the expenditures on this account from April 20 to December 31, 1870:

J. H. Sullivan & Co., contractors, regulating and grading	$95,817 00	
Thomas Crimmins, contractor, regulating and grading	16,236 00	
Surveys, estimates, etc	1,389 16	
Tools and materials	6,165 88	
Stationery, printing, etc	1,924 51	
Incidental expenses	700 00	
Proportion of salaries	5,000 00	
		$127,232 55

SIXTH AVENUE, FROM CENTRAL PARK TO HARLEM RIVER.

(Chapter 564 of the Laws of 1865.)

Balance April 20, 1870			$633 08
Received from the City of New York for regulating and grading the Sixth avenue, from April 20 to December 31, 1870			325,000 00
			$325,633 08

The expenditures on this account from April 20 to December 31, 1870, are as follows:

Regulating and grading—			
J. H. Sullivan, contractor, regulating and grading		$39,685 86	
Labor account—amount paid laborers, carts, teams, etc.		9,384 15	
Tools and materials		11,762 70	
Surveys and engineering		409 34	
Stationery, printing, etc		772 21	
		$62,014 26	
Superstructure—			
J. H. Sullivan, contractor	$141,615 00		
Labor account—amount paid laborers, etc.	15,633 61		
Materials of construction and tools	24,522 42		
Surveys and engineering	936 47		
Stationery and printing	152 30		
Incidental expenses	103 19		
		182,962 99	
			244,977 25
Balance December 31, 1870			$80,655 83

AVENUE ST. NICHOLAS, FROM CENTRAL PARK TO ONE HUNDRED AND FIFTY-FIFTH STREET.

(Chapter 367 of the Laws of 1866.)

Balance retransferred from maintenance, 1869		$22,767 83
Received from the City of New York for regulating and grading Avenue St. Nicholas, from April 20 to December 31, 1870		50,000 00
By balance December 31, 1870		6,399 31
		$79,167 14
To balance April 20, 1870	$2,378 16	

The expenditures on this account from April 20 to December 31, 1870, are as follows:

Regulating and grading—		
J. P. Cumming, Jr., regulating and grading	20,322 00	
Labor—amount paid laborers, carts, teams, etc	7,982 03	
Carried forward	$30,682 19	$79,167 14

Brought forward		$30,682 19	$79,167 14
Materials of construction and tools		3,300 00	
Surveys and engineering		1,562 84	
Stationery, printing, etc		1,924 51	
Proportion of salaries		3,000 00	
		$40,469 54	
Superstructure—			
Labor—amount paid laborers, carts, teams, etc	$30,368 99		
Materials of construction and tools	8,328 61		
		38,697 60	
			$79,167 14

MUSEUM AND OBSERVATORY, CONSTRUCTION OF.

(Chapter 595 of the Laws of 1869.)

The expenditures on this account from April 20 to December 31, 1870, are as follows:

Buildings for Zoological collection	$23,330 53
Paleozoic Museum	15,884 25
Restoring extinct animals	2,696 54
Museum building	5,090 00
To balance December 31, 1870	$47,001 32

MUSEUM AND OBSERVATORY, MAINTENANCE OF.

(Chapter 595 of the Laws of 1869.)

Received from the City of New York for maintenance of a Meteorological and Astronomical Observatory, Museum of Natural History, and Gallery of Art for the year ending December 31, 1870			$30,000 00
Received from sale of sheep			1,035 33
			$31,035 33
To balance April 20, 1870		$888 46	
The expenditures on this account from April 20 to December 31, 1870, are as follows:			
Museum	$2,140 44		
Gallery of Art	377 40		
Meteorological Department	3,238 25		
Care and keep of animals	14,357 81		
Care of sheep	825 17		
Stationery and printing	73 84		
		21,012 91	
			21,901 37
Balance December 31, 1870			$9,133 96

MOUNT MORRIS SQUARE.

To balance April 20, 1870		$1,356 50
The expenditures on this account from April 20 to December 31, 1870, are as follows:		
Labor account — amount paid laborers, gardeners, carts, etc.	$31,321 42	
Park-keepers' wages	888 00	
Surveys, engineering, etc.	1,817 33	
Materials and tools	659 18	
Trees and plants	3,798 00	
		38,483 93
		$39,840 43
Received from the City of New York for deficiency to April 20, 1870	$1,356 50	
Received from the City of New York for improvement of Mount Morris square to December 31, 1870	15,000 00	
Received from Sale of Building	100 00	
Received from transfer of Public Parks and Places Fund	23,383 93	
		39,840 43

CITY PARKS AND PLACES.

Received from the City of New York for improvement and maintenance of Public Parks and Places, for the year ending December 31, 1870	$395,000 00
Received from the City of New York balance of appropriation for pavement around Union square	2,341 72
Received from sale of old materials, City Hall park	1,511 07
from sale of stone Sixth avenue parks	1,017 90
from sale of flagging, Tompkins square	367 63
from sale of flagging, Washington square	270 99
from sale of old gate and wood, Battery park	54 25
from sale of flagging, Canal street park	48 13
from sale of grass, City parks	47 50
from sale of flagging, Beach street place	33 30
from sale of flagging, Duane street place	19 84
from sale of old wood, Cooper Institute park	4 00
from cartage and storage on fruit stand	2 50
By balance December 31, 1870	52,752 25
	$453,471 08

The expenditures on Public Parks and Places from April 20 to December 31, 1870, are as follows:

CITY HALL PARK, IMPROVEMENT OF.

Labor account — amount paid laborers, mechanics, carts, teams, etc.	$57,128 01
Materials of construction and tools	8,458 00
Paving plaza, sidewalks and paths	20,541 77
Carried forward	$86,127 78

Brought forward	$86,127 78	
Paving streets surrounding Park	16,660 00	
Coping and ornamental centres of fountains	3,786 86	
Surveys, engineers, architects, etc.	2,081 58	
Trees and plants	4,304 00	
Advertising, sale of railings	199 68	
CITY HALL PARK, MAINTENANCE OF.		
Pay of park-keepers and sweepers	3,135 25	
		$116,295 15
BATTERY PARK, IMPROVEMENT OF.		
Labor account—amount paid laborers, mechanics, carts, teams, etc.	$85,207 68	
Materials of construction and tools	7,594 85	
Sea-wall and boat basins	3,843 50	
Surveys, engineers, etc	2,402 49	
Trees and plants	690 00	
Advertising, railings, gates, etc.	89 90	
Incidental expenses	133 50	
BATTERY PARK, MAINTENANCE OF.		
Pay of park-keepers and sweepers	2,056 50	
		102,018 42
TOMPKINS PARK, IMPROVEMENT OF.		
Labor account—amount paid laborers, mechanics, cartmen, etc.	$31,881 02	
Materials of construction and tools	7,410 24	
Surveys, engineers, etc.	446 15	
Trees and plants	824 00	
Music pavilion, seats and stands	1,304 66	
TOMPKINS SQUARE, MAINTENANCE OF.		
Pay of park-keepers and sweepers	4,634 25	
		46,500 32
MT. MORRIS SQUARE.		
Improvement of		23,383 93
WASHINGTON PARK, IMPROVEMENT OF.		
Labor account—amount paid laborers, mechanics, carts, teams, etc.	$21,963 42	
Materials of construction and tools	6,771 90	
Paving roadway	4,000 00	
Surveys, engineers, etc.	837 11	
Music pavilion, seats and stands	2,114 66	
WASHINGTON PARK, MAINTENANCE OF.		
Pay of park-keepers and sweepers	4,274 00	
		39,961 09
Carried forward		$528,158 91

Brought forward		$328,158 91

CANAL STREET PARK, IMPROVEMENT OF.

Labor account — amount paid laborers, mechanics, carts, etc	$9,307 29	
Materials of construction and tools	1,267 53	
Paving sidewalk	1,129 29	
Trees	72 00	
Surveys, engineers, etc	90 85	

CANAL STREET PARK, MAINTENANCE OF.

Pay of park-keeper	544 50	
		12,411 46

FOURTH AVENUE PARKS, IMPROVEMENT OF.

Labor account — amount paid laborers, mechanics, carts, teams, and gardeners, etc	$4,698 03	
Tools and materials	785 11	
Trees and plants	3,264 00	
Surveys, engineers, etc	[illegible]62	

FOURTH AVENUE PARKS, MAINTENANCE OF.

Pay of park-keepers	1,275 00	
		10,042 76

MADISON PARK, IMPROVEMENT OF.

Pay of laborers, gardeners, carts, etc	$2,097 19	
Materials and tools	177 32	
Music pavilion, seats and stands	2,274 66	
Trees and plants	60 00	

MADISON PARK, MAINTENANCE OF.

Pay of park-keepers and sweepers	4,493 00	
		9,102 17

STUYVESANT PARKS, IMPROVEMENT OF.

Pay of laborers, gardeners, carts, etc	$1,406 97	
Materials and tools	16 84	

STUYVESANT PARKS, MAINTENANCE OF.

Pay of park-keepers and sweepers	3,481 50	
		4,905 31
Carried forward		$364,620 61

Brought forward		$364,620 61

SIXTH AVENUE PARKS, IMPROVEMENT OF.

Pay of laborers, gardeners, carts, etc.	$1,953 45	
Tools and materials	207 24	
Paving sidewalks	1,565 73	
Surveys, engineers, etc	23 75	
Trees and plants	36 00	

SIXTH AVENUE PARKS, MAINTENANCE OF.

Pay of park-keepers and sweeper	892 00	
		4,678 17

DUANE STREET PUBLIC PLACE, IMPROVEMENT OF.

Pay of laborers, gardeners, carts, etc.	$3,170 85	
Materials and tools	495 25	
Paving sidewalks	650 64	
Surveys, engineers, etc	72 08	
Plants, etc.	44 00	

DUANE STREET PUBLIC PLACE, MAINTENANCE OF.

Pay of park-keeper	87 00	
		4,519 82

UNION PARK, IMPROVEMENT OF.

Pay of laborers, gardeners, and carts	$1,230 76	
Materials and tools	82 42	
Surveys	8 05	

UNION PARK, MAINTENANCE OF.

Pay of park-keepers and sweepers	3,190 00	
		4,511 23

RESERVOIR PARK, IMPROVEMENT OF.

Pay of laborers, gardeners, etc	$343 60	
Materials and tools	54 17	

RESERVOIR PARK, MAINTENANCE OF.

Pay of park-keepers and sweepers	3,464 00	
		3,861 77
Carried forward		$382,191 60

Brought forward		$382,191 60

BEACH STREET PUBLIC PLACE, IMPROVEMENT OF.

Pay of laborers, gardeners, carts, etc.	$1,594 08	
Materials and tools	932 74	
Paving sidewalks	671 16	
Surveys, engineers, etc	89 16	
Plants, etc	18 75	

BEACH STREET PUBLIC PLACE, MAINTENANCE OF.

Pay of park-keeper	87 00	
		3,392 89

BOWLING GREEN, IMPROVEMENT OF.

Pay of laborers, gardeners, carts, etc	$2,031 82	
Materials and tools	61 28	
Surveys, engineers, etc	82 11	
Trees and plants	150 00	

BOWLING GREEN, MAINTENANCE OF.

Pay of park-keepers and sweepers	255 00	
		2,580 21

FIVE POINTS PUBLIC PLACE, IMPROVEMENT OF.

Pay of mechanics, laborers, carts, etc	$2,032 59	
Tools and materials	103 81	
Surveys, engineers, etc	23 72	
		2,160 12

COOPER INSTITUTE PARK, IMPROVEMENT OF.

Pay of laborers, gardeners, etc	$562 64	
Tools, etc	16 30	

COOPER INSTITUTE PARK, MAINTENANCE OF.

Pay of park-keepers	753 00	
		1,331 94

ABINGDON PUBLIC PLACE, MAINTENANCE OF.

Pay of gardeners, laborers, etc	$129 11	
Pay of park-keeper	588 00	
		717 11
Carried forward		$392,373 87

Brought forward		$392,373 87

CHRISTOPHER STREET PUBLIC PLACE, MAINTENANCE OF.

Pay of park-keeper and sweeper	$669 45	
Tools, etc	23 87	
		693 32

HIGH BRIDGE PARK, IMPROVEMENT OF.

Surveys, engineers, etc	$608 67	
Pay of park-keepers	984 00	
		1,592 67

MORNINGSIDE PARK, IMPROVEMENT OF.

Surveys, engineers, etc		1,732 27

MISCELLANEOUS.

Fireworks	$15,000 00	
Music	18,364 42	
Park-keepers' uniforms	1,908 66	
Pay of Superintendent, clerk, and general foreman	3,901 08	
Stationery, printing, and books of accounts	2,348 37	
Proportion of salaries	7,000 00	
Miscellaneous expenses	8,556 42	
		57,078 95
Total		$453,471 08

CIRCLE, FIFTY-NINTH STREET AND EIGHTH AVENUE.

(Chapter 757 of the Laws of 1866.)

Received from the City of New York for regulating, grading, sewering, etc., the Circle, Fifty-ninth street and Eighth avenue, during the year ending December 31, 1870		$10,000 00
To balance April 20, 1870	$86 50	
The payments on this account from April 20 to December 31, 1870, are as follows:		
Labor—amount paid laborers, mechanics, carts, etc	4,065 29	
Materials of construction and tools	1,515 04	
Surveys, etc	13 75	
Stationery and printing	73 84	
		5,754 42
Balance December 31, 1870		$4,245 58

PUBLIC PLACE, FIFTY-NINTH STREET AND FIFTH AVENUE.

(Chapter 697 of the Laws of 1867.)

Balance on hand, April 20, 1870	$11,900 96
Amount retransferred from Mount Morris square	444 31
	$12,345 27

The payments on this account from April 20 to December 31, 1870, are as follows:

Pay of laborers, mechanics, carts, etc.	$6,433 06	
Materials of construction and tools	2,281 60	
Surveys, etc.	27 50	
Stationery and printing	73 84	
		8,816 00
Balance, December 31, 1870		$3,529 27

ISLAND ABOVE ONE HUNDRED AND FIFTY-FIFTH STREET AND PUBLIC DRIVE.

(Chapter 565 of the Laws of 1865.)

Balance on hand April 20, 1870	$3,359 20
Unexpended balance transferred from "Claims against old Commissioners for laying out the City north of One Hundred and Fifty-fifth street," pursuant to Chap. 646, Laws of 1865	7,038 32
	$10,397 52

The payments on this account from April 20 to December 31, 1870, are as follows:

Surveys, maps, and draughting	$4,050 07	
Stationery, printing, and drawing materials	443 06	
Incidental expenses	50 00	
		4,543 13
Balance December 31, 1870		$5,854 39

CLAIMS AGAINST OLD COMMISSIONERS FOR LAYING OUT THE CITY NORTH OF ONE HUNDRED AND FIFTY-FIFTH STREET.

Balance on hand April 20, 1870	$7,038 32

(Transferred to "Island above One hundred and Fifty-fifth street and Public Drive," pursuant to Chapter 646, Laws 1865.)

WEST SIDE IMPROVEMENT.

(*Chap.* 550 *of the Laws* 1866, *and Chap.* 697 *of the Laws of* 1869.)

Balance on hand April 20, 1870	$2,777 00

No payments have been made on this account from April 20 to December 31, 1870.

NINTH AVENUE.

(*Chap.* 288 *of the Laws of* 1868.)

Balance on hand April 20, 1870	$10,000 00

No payments have been made on this account from April 20 to December 31, 1870.

ONE HUNDRED AND FORTY-FIFTH STREET, FROM SIXTH TO SEVENTH AVENUE.

(*Chap.* 564 *of the Laws of* 1865.)

Balance on hand April 20, 1870		$3,932 54
The payments on this account to December 31, 1870, are as follows:		
J. H. Sullivan, contractor, regulating and grading	$3,849 11	
Surveys	41 66	
		3,890 77
Balance on hand December 31, 1870		$41 77

BROADWAY WIDENING, FROM THIRTY-FOURTH STREET TO FIFTY-NINTH STREET.

(*Chap.* 880 *of the Laws of* 1869.)

Balance on hand April 20, 1870	$1,218 00

No payments have been made on this account from April 20 to December 31, 1870.

HARLEM RIVER AND SPUYTEN DUYVIL CREEK IMPROVEMENT.

(*Chap.* 286 *of the Laws of* 1869, *and Chap.* 797 *of the Laws of* 1870.)

Balance April 20, 1870		$9,371 80
The payments on this account from April 20 to December 31, 1870, are as follows:		
Surveys, engineers, etc	$845 78	
Stationery and drawing materials	73 84	
		919 62
Balance December 31, 1870		$8,452 18

WESTCHESTER COUNTY, TOWN OF WEST FARMS.

(*Chap.* 826 *of the Laws of* 1869, *and Chap.* 767 *of the Laws of* 1870.)

Received from the town of West Farms from April 20 to December 31, 1870....		$5,000 00
To balance April 20, 1870.....	$177 01	
The payments on this account from April 20 to December 31, are as follows:		
Surveys, maps, and draughting.....	4,688 25	
		4,865 26
Balance December 31, 1870.....		$134 74

WESTCHESTER COUNTY, TOWN OF YONKERS.

(*Chap.* 826 *of the Laws of* 1869, *and Chap.* 797 *of the Laws of* 1870.)

Received from the town of Yonkers from April 20 to December 31, 1870.....		$10,000 00
To balance April 20, 1870.....	$803 41	
The expenditures on this account from April 20 to December 31, 1870, are as follows:		
Surveys, maps, and draughting.....	9,071 15	
Stationery and drawing materials.....	73 84	
		9,948 40
Balance December 31, 1870.....		$51 60

ADAPTING WEST LINE OF PARK TO NEW EIGHTH AVENUE GRADE.

(*Chap.* 632 *of the Laws of* 1866.)

Received from the City of New York for adapting west line of Park to new Eighth avenue grade, from April 20 to December 31, 1870.....	$25,000 00
The expenditures on this account to December 31, 1870, are as follows:	
Labor—amount paid mechanics, laborers, carts, teams, etc.....	22,834 53
Balance December 31, 1870.....	$2,165 47

EAST SIDE IMPROVEMENT.

(*Chap.* 626 *of the Laws of* 1870.)

The payments on this account from April 20 to December 31, 1870, are as follows:

Surveys, maps, and draughting.....	$4,053 45
Drawing materials and stationery.....	73 84
	$4,097 29

GRADING EIGHTH AVENUE, SEVENTY-SEVENTH TO EIGHTY-FIRST STREET.

(*Chap.* 858 *of the Laws of* 1858.)

The payments on this account from April 20 to December 31, 1870, are as follows :

Pay of laborers, carts, teams, etc	$1,384 76

RECAPITULATION.

Balance December 31, 1870, "Construction Account, Central Park"	$51,521 04
" " " "Boulevard,"	28,075 15
" " " "Sixth avenue,"	80,655 83
" " " "Museum and Observatory, maintenance of,"	9,133 96
" " " "Circle, Fifty-ninth street and Eighth avenue,"	4,245 58
" " " "Public square, Fifty-ninth street and Fifth avenue,"	3,529 27
" " " "Island above One Hundred and Fifty-fifth street and Public Drive,"	5,854 39
" " " "West Side Improvement,"	2,777 34
" " " "Ninth avenue,"	10,000 00
" " " "One Hundred and Forty-fifth street,"	41 77
" " " "Broadway Widening,"	1,218 00
" " " "Harlem River and Spuyten Duyvil Improvement,"	8,452 18
" " " "Town of West Farms,"	134 74
" " " "Town of Yonkers,"	51 60
" " " "Adapting West Line of Park to new Eighth avenue grade,"	2,165 47
	$207,856 32

Less amounts transferred to the credit of the following accounts :

Maintenance Central Park, 1870	$8,982 16	
Seventh avenue	5,211 05	
St. Nicholas avenue	6,399 31	
Museum and Observatory, construction of	47,001 32	
Public Parks and Places	52,752 25	
East Side Improvement	4,097 29	
Grading Eighth avenue, Seventy-seventh to Eighty-first street	1,384 76	
		125,828 14
Cash balance, December 31, 1870		$82,028 18

By Chapter 385, Laws of 1870, State of New York, eight hours was constituted a legal day's work for all classes of mechanics, working men, and laborers, and making a non-compliance with the law a misdemeanor.

At a meeting of the Board held June 1, 1870, the following preamble and resolutions were adopted:

"*Whereas*, By the provisions of the act passed at the late session of the Legislature, "regulating the hours of labor, entitled, 'An act to regulate the hours of labor of mechanics, "working men, and laborers in the employ of the State, or otherwise engaged on public works,' "eight hours have been fixed and established as a day's work for all mechanics, working men, "and laborers employed on the public works of the State and municipal corporations, with the "plain intention that such mechanics, working men, and laborers shall receive for such number "of hours, thus constituted a 'day's work,' substantially the same compensation as that hereto-"fore paid for a day's work of longer duration, and it is the duty of this Department to carry "this provision of law into effect; therefore

"*Resolved*, That all mechanics, working men, and laborers employed by this Department "shall hereafter be employed and paid by the day's work of eight hours' duration, according to "law, and that the compensation shall be at the current rate paid for similar work, and that "extra compensation be made for over-work required from any such mechanic, working man, "or laborer...

"*Resolved, further*, That the Executive Committee is hereby charged with the duty of "carrying the foregoing resolution into effect and of establishing the rate of wages to be paid "in conformity therewith."

At a meeting of the Executive Committee held June 10, 1870, the following resolution was adopted:

"*Resolved*, That until further ordered, the rate of wages for each day's work by every "mechanic, workingman, and laborer employed by the Department of Public Parks, shall be as "follows:

Blacksmiths	$3 50	per day.
Carpenters	4 00	"
Masons	4 24	"
Stone masons	4 24	"
Stone-cutters	4 24	"
Brown-stone cutters	4 48	"
Laborers	2 00	"
Skilled laborers	2 50	"
Rockmen	2 24	"

Painters	$3 75	per day.
Team, wagon, and driver	5 44	"
Horse, cart and driver	3 60	"
Plumbers	5 00	"
Rock blasters	2 44	"
Female attendants	1 00	"
Assistant gardeners	2 40	"
Stone-breakers	06	per cubic foot.
Breakers of trap block	09	"

"Eight hours' labor constitutes a day's work and shall be divided as follows :

"Beginning at 8 o'clock A. M. and continuing until 12 o'clock M.; resuming work at 1 'o'clock P. M., and ending at 5 o'clock P. M.

"Roll will be called at 8 and 12 o'clock, and 1 and 5 o'clock. Absence from or not answer-"ing either roll-call, will be considered as absence from work, and no pay will be allowed for "any work done during the four hours previous or subsequent to such absence, as the case may "be.

"Over-work may be performed by agreement before 8 o'clock A. M. and after 5 o'clock "P. M., at the rate of one-eighth (⅛) of these prices for each hour of service. But no payment "or allowance will be made for parts of an hour."

The following Tables show the rates of wages paid on the works now under the control of this Department, giving a comparative statement of those paid during the past fourteen years.

TABLE *showing the rate of pay per day from the commencement of the Park work to November* 1, 1864.

	1857.	1858.		1859.		1860.		1861.		1862.		1863.		1864.	
	Nov. 1.	April 1.	Nov. 1.	April 1.	Nov. 1.	April 1.	Nov. 1.	April 1.	Nov. 1.	April 1.	Nov. 1.	April 1.	Nov. 1.	April 1.	Nov. 1.
Foremen	$1 50	$1 50	$1 75	$1 75	$2 00	$2 00	$2 00	$2 00	$2 00	$2 00	$2 00	$2 00	$2 20	$2 50	$3 00
Assistant foremen	.....	.....	1 25	1 25	1 50	1 50	1 50	1 50	1 50	1 50	1 50	1 50	1 65	1 80	2 25
Laborers	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	90	90	1 00	1 25	1 25	1 50	1 80
Double teams	3 50	3 50	3 50	3 50	3 50	3 50	3 50	3 50	2 75	2 60	2 70	3 30	3 50	3 90	4 40
Carts	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	1 80	1 75	1 80	2 20	2 50	2 80	3 15
Blacksmiths	1 50	1 50	1 50	1 50	1 75	1 87½	1 87½	1 87½	1 60	1 60	1 65	1 90	2 00	2 50	3 00
Helpers	1 00	1 00	1 00	1 12	.....	.....	1 25	1 25	1 00	1 05	1 10	1 25	1 35	1 60	1 90
Carpenters	1 50	1 50	1 50	1 50	1 75	1 75	1 75	1 75	1 60	1 75	2 00	2 00	2 50	3 00	3 25
Painters	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rockmen	.....	.....	.....	.....	1 10	1 10	1 10	1 10	.....	.....	.....	.....	1 60	1 90	2 00
Blasters	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Masons	.....	.....	1 75	2 00	2 00	2 00	2 00	2 00	1 65	.....	1 75	.....	2 20	2 50	3 00
Stone-cutters	.....	.....	1 75	2 00	2 00	2 00	2 00	2 00	1 65	.....	1 75	.....	2 20	2 50	3 00
Gardeners	.....	.....	.....	1 40	1 40	1 00	1 30	1 30	1 15	1 10	1 10	1 30	1 40	1 60	1 90
Skilled gardeners	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Skilled laborers	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Stone-breakers	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hand-drillers	.....	.....	.....	.....	1 10	1 10	1 10	1 10	.....	.....	.....	.....	.....	.....	.....
Brick-layers	.....	.....	1 75	1 75	2 00	2 00	2 00	.....	1 65	1 70	.....	.....	.....	.....	.....
Engineers	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gate-keepers	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Machinists	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Plumbers	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Modellers	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sculptors	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ladies'-maids	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pavers	.....	.....	.....	.....	1 25	.....	1 10	1 10	1 00	1 00	.....	.....	1 35	1 60	1 90

TABLE *showing the rate of pay per day from April* 1, 1865, *to April* 1, 1871.

	1865.		1866.		1867.		1868.		1869.		1870.		1871.
	April 1.	Nov. 1.	April 1.	Nov. 1.	April 1.	Nov. 1.	April 1.	Nov. 1.	April 1.	Nov. 1.	April 1.	Nov. 1.	April 1.
Foremen	$3 00	$3 00	$2 00	$3 00	$3 50	$3 50	$3 50	$4 00	$4 00	$4 00	$4 00	$4 00	$4 50
Assistant foremen	2 25	2 25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3 00
Laborers	1 90	1 90	1 90	1 90	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00
Double teams	4 70	4 70	4 70	5 00	5 50	5 50	5 50	5 50	5 50	5 50	5 44	5 44	5 44
Carts	3 40	3 40	3 40	3 40	3 80	3 80	3 80	3 80	3 80	3 80	3 60	3 60	3 60
Blacksmiths	3 25	3 25	3 25	3 50	3 50	3 50	3 50	3 50	3 50	3 50	3 50	3 50	3 50
Helpers	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00
Carpenters	3 35	3 25	3 50	3 50	3 50	3 50	3 50	4 00	4 00	4 00	4 00	4 00	4 00
Painters	2 75	3 00	3 00	3 25	3 25	3 25	3 50	3 75	3 75	3 75	3 75	3 75	3 75
Rockmen	2 00	2 00	.....	.....	.....	.....	.....	2 25	2 25	2 25	2 25	2 24	2 24
Blasters	.....	.....	.....	.....	.....	.....	.....	2 50	2 50	2 50	2 50	2 44	2 44
Masons	3 50	3 50	3 50	3 50	4 00	4 00	4 00	4 50	4 50	4 50	4 24	4 24	4 24
Stone-cutters	3 50	3 50	3 50	3 50	4 00	4 00	4 00	4 50	4 50	4 50	4 24	4 24	4 24
Gardeners	2 00	2 00	2 00	2 00	2 10	2 10	2 10	2 35	2 35	2 50	2 40	2 40	2 40
Skilled gardeners	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3 00
Skilled laborers	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2 50	2 50	2 50
Stone-breakers	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hand-drillers	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Brick-layers	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Engineers	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4 00	4 00	3 50
Gate-keepers	1 35	1 35	1 35	1 35	1 50	1 50	1 50	1 50	1 50	1 50	1 50	2 25	2 25
Machinists	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3 50	.....	4 00
Plumbers	.....	.....	.....	.....	.....	.....	.....	.....	5 00	5 00	5 00	5 00	5 00
Modeller	.....	.....	.....	.....	.....	.....	.....	.....	4 00	4 00	4 00	4 00	4 00
Sculptors	3 50	.....	.....	3 75	.....	5 50	.....	.....	5 50	5 50	5 50	6 00	6 00
Ladies'-maids	85	85	85	85	85	85	85	85	85	85	85	1 00	1 00
Pavers	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

STATEMENT *showing in number of days the force employed on the Parks, and other works in charge of the Department, during each month of the year ending March* 31, 1871.

MONTHS.	General Foremen.	Foremen.	Assistant Foremen.	Inspectors.	Sculptors.	Modellers.	Carpenters.	Painters.	Stone-cutters.	Masons.	Iron-workers.	Blacksmiths.	Plumbers.	Helpers.	Steam Engineers.
April	29	483	.....	.....	26	26	474	52	1,636	374	.....	318	26	158	.....
May	27	501	.....	.....	26	26	436	52	1,876	672	.....	294	25	141	.....
June	26	602	.....	.....	26	26	452	81	2,630	1,125	.....	308	26	173	.....
July	26	789	.....	.....	25	26	718	148	3,146	1,399	.....	330	25	192	.....
August	27	822	.....	26	28	27	1,178	206	3,592	1,600	.....	372	27	220	26
September	39	732	.....	26	26	26	1,452	215	3,634	1,503	.....	357	26	204	26
October	52	913	.....	26	26	26	1,957	537	3,944	2,515	29	386	26	228	52
November	52	1,201	.....	25	25	25	2,666	805	4,401	2,318	25	442	25	202	52
December	50	1,344	15	26	26	26	2,640	991	3,805	1,915	26	440	26	232	52
January	52	176	28	26	26	26	2,938	1,112	1,339	1,266	24	488	26	228	52
February	48	180	24	24	24	24	1,596	1,163	2,201	948	20	413	21	197	48
March	54	1,285	29	27	27	18	2,463	1,459	3,930	1,659	33	447	26	250	27
	482	9,028	96	206	311	302	18,970	6,821	36,134	17,294	157	4,595	305	2,425	335

STATEMENT *showing in number of days the force employed on the Parks, and other works in charge of the Department, during each month of the year ending March* 31, 1871—(Continued).

MONTHS.	Gardeners.	Skilled Gardeners.	Blasters.	Rockmen.	Laborers.	Skilled Laborers.	Eight-horse Teams.	Double Teams.	Carts.	Female Attendants.	Gate-keepers.	Superintending Stone-cutters.	Men in charge of Stone-breakers.	Stone-breakers.	Machinists.
April	295	.....	168	7,449	10,820	130	.....	1,622	2,999	90	768	.....	78	4,822	....
May	309	.....	161	6,692	12,196	131	.....	1,407	3,095	93	759	.....	75	2,934	....
June	372	.....	234	6,659	20,335	143	32	1,671	3,886	90	714	26	78	2,060	....
July	449	.....	169	5,945	25,350	237	33	1,870	4,589	93	748	26	78	2,040	....
August	536	.....	141	5,409	24,714	293	27	2,110	4,996	155	718	27	81	2,166	....
September	520	.....	132	4,297	26,455	255	52	2,204	4,703	150	690	26	78	2,159	25
October	527	.....	120	4,409	31,817	246	69	2,484	5,411	130	712	26	84	1,541	26
November	629	342	130	5,752	36,888	240	59	3,017	7,587	179	718	26	75	1,766	25
December	907	400	138	4,880	27,981	240	47	3,015	6,483	186	712	26	71	631	26
January	880	354	131	3,957	24,852	208	9	2,012	3,787	184	712	24	63	598	24
February	843	330	114	3,921	21,276	353	1	1,428	2,517	168	718	24	59	1,381	23
March	1,137	401	130	1,013	30,292	233	41	2,079	3,936	186	884	27	55	1,386	40
	7,404	1,827	1,768	60,383	292,976	2,709	370	24,919	53,989	1,704	8,853	258	875	23,484	189

STATEMENT *of the Average Working Force, per day, employed on the various works in charge of the Board for each month of the year ending March* 31, 1871.

1870—71.	General Foremen.	Foremen.	Laborers	Skilled Laborers.	Rockmen.	Blasters.	Carts	Double teams	Gardeners.	Skilled Gardeners.	Carpenters.	Painters.	Masons.	Stone-cutters.	Blacksmiths.	Helpers	Modellers	Sculptors.	Plumbers.	Janitors	Ladies'-maids.	Messengers.	Machinists.	Iron-workers.	Stone-breakers.	Gate-keepers.	Eight-horse rollers.	Laborers, Zoological Department.
1870.																												
April	1	18	354	5	282	7	100	75	11	....	16	2	16	65	12	6	1	1	1	3	3	5	....	....	200	25	....	4
May	1	18	386	5	257	7	100	46	11	....	16	2	28	72	12	6	1	1	1	3	3	5	....	....	113	24	....	4
June	1	22	670	5	257	9	129	56	13	...	17	3	45	100	12	7	1	1	1	3	3	5	....	....	79	25	1	4
July	1	30	837	10	220	7	148	60	18	....	32	5	55	121	13	7	1	1	1	3	3	5	....	....	78	23	1	4
August	1	30	519	11	200	5	157	74	34	...	45	8	57	133	14	8	1	1	1	3	5	5	....	....	82	23	1	4
September	2	30	468	10	74	5	51	37	10	..	28	8	30	71	14	8	1	1	1	3	5	5	....	....	....	..	2	4
October	2	60	1,024	10	147	4	221	72	22	....	74	23	84	146	16	9	1	1	1	....	5	....	....	1	90	18	3	4
November	2	56	1,187	10	213	5	244	97	32	15	115	32	100	180	18	9	1	1	1	....	6	....	1	1	68	....	3	4
December	2	50	864	10	180	6	209	102	35	15	98	36	68	140	18	9	1	1	1	....	6	....	....	1	60	....	2	4
1871.																												
January	2	44	700	9	141	6	122	74	40	15	117	44	49	56	17	9	1	1	1	....	6	....	1	1	50	....	2	8
February	2	44	694	9	135	6	86	65	29	11	110	52	55	145	16	8	1	1	1	....	6	....	1	1	80	....	1	8
March	2	45	976	10	200	6	127	67	46	15	80	57	61	145	18	10	1	1	1	....	6	....	2	1	55	33	2	8

The largest number of persons engaged during the year on the Central Park, the squares and places, the Boulevard—and other works under the control of the Department, was 2,401; the smallest number was 1,122.

The number of the public parks, squares, and places of the city now under the control and management of the Department is twenty-three. The area of the Central Park is $862\frac{70}{1000}$ acres; the area of the several squares and places is $145\frac{181}{1000}$ acres; making a total park area of $1{,}007\frac{251}{1000}$ acres, as follows:

Abingdon	0.202	acres.
Battery	21.199	"
Beach Street	0.038	"
Boulevard and Sixty-third Street	0.344	"
Bowling Green	0.517	"
Canal Street	0.318	"
Central	862.070	"
Christopher Street	0.139	"
City Hall	8.234	"
Cooper Institute	0.224	"
Duane Street	0.108	"
Five Points	0.114	"
High Bridge	23.380	"
Madison	6.492	"
Morningside	31.238	"
Mount Morris	20.173	"
Park Avenue	1.165	"
Reservoir	4.775	"
Sixth Avenue	0.186	"
Stuyvesant	4.229	"
Tompkins	10.508	"
Union	3.483	"
Washington	8.115	"
Total	1,007.251	"

The total cost of the land of the Central Park is	$6,666,381 77
Less amount assessed on property benefited	1,828,265 00
The cost of the land of the Park to the city is	$4,838,116 77
The total expenditure for improvement of the Park, from May 1, 1857, to January 1, 1871, is	6,330,732 50
Total cost of the Park land and improvement to the city is	$11,168,849 27

The following is a Topographical Description of the Central Park, by Areas of Surface, &c., January 1, 1871.

Length of Park, from 59th to 110th streets	13,507 ft. $9\frac{4}{10}$ in.
Breadth " " 5th to 8th avenues	2,718 " $6\frac{9}{10}$ "
Superficial area	$843\frac{019}{1000}$ acres.
" " Ground known as Manhattan Square	$19\frac{051}{1000}$ "
Total Park area	$862\frac{070}{1000}$ acres.

	Acres.	Elevation of water above tide.	
		Feet.	
Area, exterior to inclosure, 59th street and 110th street, Broad Walks	$3\frac{098}{1000}$	.....	
Do. occupied by four Transverse Roads	$9\frac{474}{1000}$	.....	
Do. " by new Croton Reservoir	$106\frac{729}{1000}$	115.20	
Do. " by old Reservoir	$35\frac{384}{1000}$	115 20	$154\frac{587}{1000}$ "
Total area of Park within inclosure, exclusive of above areas			$707\frac{483}{1000}$ acres.

	Acres.	Elevation of surface when full above tide. Summer level.
		Feet.
Area of the Pond (near 59th street, between 5th and 6th avenues)	$4\frac{800}{1000}$	26.00
Do. " Lake (between 72d and 78th streets)	$20\frac{167}{1000}$	53.20
Do. " Conservatory water (east of Lake near 5th avenue)	$2\frac{579}{1000}$	41 00
Do. " Pool (near 8th avenue, between 101st and 102d streets)	$2\frac{013}{1000}$	45.00
Do. " the Harlem Lake	$12\frac{654}{1000}$	11.00
Do. " the Loch	$1\frac{048}{1000}$	24.50
Total area of waters of the Park at this date	$43\frac{259}{1000}$ acres.	

	Acres.		
Area occupied by Carriage Roads	$49\frac{580}{1000}$		
Do. " by Bridle Roads	$15\frac{371}{1000}$		
Do. " by Walks	$38\frac{527}{1000}$		
Total		$103\frac{478}{1000}$ acres.	$146\frac{737}{1000}$ "

Total area of ground within inclosure, exclusive of Reservoirs, Ponds, Roads and Walks	$560\frac{745}{1000}$ acres.
Area of rock surface mainly without soil or shrubbery, *estimated*	24 "
Area of Park ground fertilized, or chiefly fertilized, and in trees and shrubbery, or in open lawns, exclusive of Reservoirs, Roads, Walks, Ponds, rock surface, &c., *estimated*	$536\frac{746}{1000}$ acres.
Length of Carriage Drives completed	$9\frac{435}{1000}$ miles.
Length of Bridle Rides completed	$5\frac{503}{1000}$ "
Length of Walks completed	$27\frac{945}{1000}$ "

The total cost of the maintenance of the Central Park during the past year was in excess of the previous year, in consequence of the eight-hour law of the State, referred to on page 125, reducing the labor result one-fifth, and the extensive repairs required and made in regraveling the drives, rides, and walks, which were found in very bad condition by this Department.

The iron and cement water pipes, laid several years since, unexpectedly gave out in a number of places, undermining the drives, rides, and walks to a considerable extent, the repairs of which also added to this account.

The details of expenditures on account of the Central Park maintenance are as follows:

	LABOR.	MATERIALS.	TOTAL.
Roads, cleaning	$28,570 53	$73 70	$28,644 23
Roads, repairing	9,030 07	26,540 36	35,570 43
Bridle Roads, cleaning	1,419 84	.....	1,419 84
Bridle Roads, repairing	74 55	24 15	98 70
Walks, cleaning	10,732 95	.....	10,732 95
Walks, repairing	5,804 84	10,106 78	15,911 62
Plantations	17,150 78	2,347 08	19,497 86
Turf	15,244 84	597 50	15,842 34
Water	362 57	.....	362 57
Ice	5,061 60	740 97	5,802 57
Irrigation	10,236 86	633 11	10,869 97
Transverse Roads	672 98	.....	672 98
Masonry	3,399 19	592 33	3,991 52
Tools	3,307 80	1,511 28	4,819 08
Surface Drainage	2,304 02	.....	2,304 02
Buildings	11,549 84	1,557 55	13,107 39
Manure	277 00	.....	277 00
Park and gate-keepers' wages, uniforms, etc	56,070 33	684 62	56,754 95
Special park-keepers' wages	4,955 97	.....	4,955 97
Music	4,590 00	.....	4,590 00
Stationery, printing, advertising, etc	10,806 06	.....	10,806 06
Seats, signs, etc	481 73	263 87	745 60
Miscellaneous	11,458 12	1,518 83	12,976 95
Proportion of salaries	10,000 00	.....	10,000 00
Total	.....	.....	$270,754 60

The expenditures on maintenance of City Parks and Places are as follows:

Pay of Park-keepers	$24,761 45
Pay of Sweepers	10,102 00
Pay of Superintendent, Clerk, and General Foreman	3,901 08
Park-keepers' uniforms	1,908 66
Music	18,364 42
Fireworks	15,000 00
Total	$74,037 61

The following is the force of Park-keepers, Gate-keepers, and Sweepers engaged at the Central Park and the several City Parks and Places, viz.:

Central Park	Captain	1	
	Lieutenant	1	
	Sergeants	5	
	Roundsmen	2	
	Park-keepers	54	
			63
City Parks and Places	Sergeants		3
" " "	Park-keepers		37
	Total		103
Central Park	Gate-keepers		50
City Parks and Places	Sweepers		50

The buildings provided for the accommodation of skaters during the past winter were complete and comfortable, and the ice, remaining in good condition, afforded amusement and pleasure to a large number for a long period, in all forty-eight days, as shown by the following table:

TABLE

Showing the Number of Days on which there was Skating at the Park.

1858–9.	1859–60.	1860–1.	1861–2.	1862–3.	1863–4.	1864–5.	1865–6.	1866–7.	1867–8.	1868–9.	1869–70.	1870–1.
1858.	1859.	1860.	1861.	1862.	1863.	1864.	1865.	1866.	1867.	1868.	1870.	1870.
Dec. 29	Dec. 24	Dec. 14	Dec. 29	Dec. 22	Dec. 11	Dec. 21	Jan. 8	Dec. 15	Dec. 17	Dec. 14	Feb. 25	Dec. 26
1859.	" 25	" 15	" 30	1863.	" 23	" 22	" 9	" 16	" 18	" 15		" 27
Jan. 3	" 26	" 16	" 31	Jan. 20	" 24	" 23	" 10	" 19	" 19	" 16		" 28
" 22	" 27	" 18	1862.	Feb. 5	" 25	" 24	" 11	" 20	" 20	" 19		" 29
" 23	" 28	1861.	Jan. 1	" 24	" 26	" 25	" 12	" 21	" 21	" 20		" 30
" 24	" 29	Jan. 11	" 2	" 25	" 27	" 30	" 15	" 22	" 24	" 22		" 31
" 25	" 30	" 12	" 3	" 28	1864.	1865.	" 17	" 26	" 25	" 24		1871.
" 26	" 31	" 13	" 4		Jan.	Jan. 2	" 18	" 28	" 30	" 25		Jan. 1
" 27	1860.	" 14	" 5		" 3	" 3	" 19	" 29	" 31	" 26		" 2
" 28	Jan. 1	" 18	" 6		" 6	" 4	" 21	" 30	1868.	" 27		" 3
" 29	" 2	" 19	" 7		" 7	" 5	" 22	" 31	Jan. 3	" 28		" 4
" 30	" 3	" 20	" 8		" 8	" 6	" 23	1867.	" 5	" 29		" 7
Feb. 10	" 4	" 21	" 11		" 9	" 8	" 24	Jan. 1	" 6	" 30		" 8
" 11	" 5	" 22	" 14		" 10	" 9	" 26	" 2	" 7	" 31		" 9
" 12	" 6	" 23	" 17		" 11	" 11	" 27	" 3	" 9	1869.		" 10
" 21	" 7	" 26	" 22		" 12	" 12	" 28	" 4	" 10	Jan. 3		" 11
" 22	" 26	" 28	" 23		" 13	" 13	" 29	" 5	" 11	" 6		" 12
" 23	" 27	" 29	" 24		" 16	" 15	" 30	" 6	" 12	" 7		" 13
Mar. 5	" 28	" 30	" 27		" 17	" 16	" 31	" 7	" 13	" 11		" 17
" 6	" 29	" 31	" 28		" 22	" 17	Feb. 1	" 8	" 14	" 13		" 18
	" 30	Feb. 1	" 29		" 23	" 18	" 2	" 9	" 15	" 14		" 19
	" 31	" 4	Feb. 1		Feb. 18	" 19	" 3	" 10	" 16	" 16		" 20
	Feb. 1	" 5	" 2		" 19	" 20	" 4	" 11	" 17	" 17		" 21
	" 2	" 6	" 3		" 20	" 21	" 5	" 12	" 18	" 18		" 22
	" 3	" 7	" 4		" 21	" 22	" 6	" 13	" 19	" 20		" 23
	" 5	" 8	" 5			" 24	" 7	" 14	" 20	" 21		" 24
	" 8	" 9	" 6			" 25	" 17	" 15	" 22	" 22		" 25
	" 9	" 10	" 8			" 26	" 18	" 16	" 23	" 23		" 26
	" 10		" 9			" 27		" 19	" 25	" 24		" 27
	" 11		" 10			" 28		" 20	" 26	" 26		" 28
	" 12		" 11			" 29		" 23	" 28	" 27		" 29
	" 13		" 12			" 30		" 24	" 31	" 28		" 30
	" 14		" 13			" 31		" 25	Feb. 1			" 31
	" 15		" 15			Feb. 1		" 26	" 2	Feb. 1		Feb. 2
	" 16		" 16			" 2		" 27	" 3	" 2		" 3
	" 17		" 17			" 3		" 28	" 4	" 5		" 4
	" 20		" 18			" 4		" 29	" 5	" 6		" 5
			" 19			" 6		" 30	" 6	" 7		" 6
			" 21			" 7		Feb. 1	" 7	" 8		" 7
			" 22			" 9		" 2	" 8			" 8
			" 23			" 10			" 10			" 10
			" 25			" 11			" 11			" 11
			" 26			" 13			" 12			" 13
			" 28			" 14			" 13			" 15
			Mar. 1			" 15			" 14			" 16
			" 2			" 18			" 15			" 19
			" 3			" 19			" 16			" 20
			" 5			" 20			" 17			" 22
			" 6			" 21			" 18			" 23
			" 7			" 22			" 19			
			" 8			" 24			" 20			
									" 22			
									" 23			
									" 24			
									" 25			
									" 26			
									" 28			
									" 29			
									Mar. 1			
									" 4			
									" 5			
									" 6			
Days 19	Days 36	Days 27	Days 50	Days 6	Days 24	Days 50	Days 28	Days 39	Days 61	Days 38	Days 1	Days 48

TABLE *showing the Number of Musical Entertainments in the several Parks during the year* 1870.

		MAY.	JUNE.	JULY.	AUGUST.	SEPTEMBER.	OCTOBER.	NOV.	TOTAL NUMBER IN EACH PARK.
Mt. Morris Square	Mondays	..	6 13 20 27 ..	.. 11 18 25 ..	1 8 15 22 29	5 12 19 26 ..	3 10 17 24 31	..	21
Tompkins Square	Tuesdays	31st.	.. 14 21 28 ..	5 12 19 26 ..	2 9 16 23 30	6 13 20 27 ..	4 11 18 25 ..	1	22
Washington Square	Wednesdays	25th	1 8 .. 22 29	6 13 20 27 ..	3 10 17 24 31	7 14 21 28 ..	5 12 19 26 ..	2	23
Madison Square	Thursdays	26th	2 9 16 23 30	7 14 21 28 ..	.. 11 18 25 ..	1 8 15 22 29	6 13	..	20
Battery Park	Fridays	..	.. .. 17 24 ..	1 8 15 22 29	5 12 19 26 ..	2 9 16 23 ..	7 14 21 28 ..	..	19
Central Park	Saturdays	21st.	.. .. 18 25 ..	2 9 16 23 30	6 13 20 27 ..	3 10 .. 24 ..	1 8 15 22 29	..	20
Number of entertainments for each month		4	20	25	26	24	24	2	
Total number of entertainments for the year									125

The expense of which was as follows:

For Central Park $4,590 00
For City Parks 18,364 42

Average for each Entertainment ..... $184 00.

The cost of these entertainments is but trifling, considering the vast numbers of all classes who take pleasure in them, particularly the poorer class,—who are unable to attend in-door musical entertainments. The highest evidence of the public appreciation is shown in the good order maintained.

The boat service at the Central Park continues in public favor.

The following table shows the number of passengers served during the year:

BOATS.

	Call Boats.	Passage Boats.
For the week ending April 23	100	382½
" " 30	564	2,474½
" May 7	533½	1,873
" " 14	444	1,560½
" " 21	1,149	2,938
" " 28	859	2,453½
" June 4	550	2,385½
" " 11	703½	3,701
" " 18	1,839½	3,949½
" " 25	1,563	4,771
" July 2	921	3,047½
" " 9	1,870	5,461
" " 16	1,774	4,456
" " 23	1,149	3,203½
" " 30	988½	4,094½
" Aug. 6	1,101½	3,771½
" " 13	1,236	2,920
" " 20	1,130	4,516
" " 27	983	5,047
" Sept. 3	823	4,556
" " 10	1,225	4,363
" " 17	783½	3,066½
" " 24	679	3,297
" Oct. 1	495	3,150
" " 8	262	1,413
" " 15	481½	1,723
" " 22	362½	1,529½
" " 29	331½	1,115
" Nov. 5	73	293
" " 12	65½	317½
" " 19	33½	179½
	25,073½	88,009

The total amount derived from these passengers by the Manager of the Boat Service was $14,544.80. The total expense of conducting this service was $12,501.55.

The sum of $1,000 has been received on this account for license fee for the year 1869. The license fee of $1,000 for the year 1870 is due and unpaid.

The total amount of sales at the Mineral Springs during the year 1870, was $5,512.65. No license fee has been received from this source.

The Department received from the National Bank of Commerce in New York, as interest on deposit of its funds, since its organization to the first day of October, the sum of $1,173.60. The further amount of $354.79 has also been received for interest to December 31, from the Tenth National Bank, which is now the designated depository of the Department funds.

The total receipts from licenses, sale of products, old materials, etc., of Central Park, parks and places, were as follows:

CENTRAL PARK.

From sale of trees and plants to city parks	$13,353 75	
" grass	1,833 50	
" old materials	641 16	
" sheep and wool	1,035 33	
From license to sell refreshments	4,514 52	
" hire boats	1,000 00	
From pound receipts	164 30	
" rent of house on Central Park	150 00	
For removing broken vehicles	141 00	
		$22,833 56

BOULEVARD.

From sale of stone	29 25

MOUNT MORRIS SQUARE.

From sale of old building	100 00
Carried forward	$22,962 81

Brought forward		$22,962 81

CITY PARKS AND PLACES.

From sale of old material, City Hall Park	$1,511 07	
" stone, Sixth Avenue Park	1,017 90	
" flagging, Tompkins Square	367 63	
" flagging, Washington Square	270 99	
" gate and wood, Battery Park	54 25	
" flagging, Canal Street Park	48 13	
" grass, City parks	47 50	
" flagging, Beach Street Place	33 30	
" flagging, Duane Street Place	19 84	
" old wood, Cooper Institute Park	4 00	
		3,374 61
Total		$26,337 42

The total number of passengers carried by the Central Park carriage service, during the year 1870, was 112,245.

The total receipts for fares was $26,188.65; expenses, $21,236. No payments have ever been made for license fee on this account.

The sum of $4,514.52 has been received from license fee for the sale of refreshments at the Central Park.

The amount of grass cut at the Central Park and the several parks and places, and sold during the year, was 1,831 loads, realizing the sum of $1,881. A quantity of grass and hay was reserved for maintenance of the zoological collection and for use in the Park operations.

A large quantity of grass, cut from the various city parks and places, was, by order of the Board, furnished to the Fire Department for their use free of expense.

In consequence of the continued dry weather of the past

summer but little hay was made, the grass crop falling short of previous years.

The item of $13,353.75 for sale of trees and plants taken from the Central Park, for ornamenting the several city parks and places, is charged against the appropriation therefor, and credited to the maintenance account of the Central Park.

The amount of $3,374.61 was received from the sale of old materials, deemed unfit for use, and removed from the various parks and places.

Sales of surplus sheep and wool clippings have been made during the year to the extent of $1,035.33.

For the purpose of keeping up and improving the purity of the stock, the Department, through the kindness of Mr. Geo Fox, of Manchester, and S. N. Graves, Honorable Member for Liverpool, Wavetree Grange, procured and imported from England, three Southdown Tups or Rams, one example each from the three great breeders of this class of Sheep, viz.: Mr. E. Emery, Munster Place, Sussex; William Rigdon, Honorable Member for Brighton, Sussex, and Mr. Henry Humphrey, Ashington Mills, Sussex. Although the breed is the same, the strains are different, each having a distinct reputation as to form, beauty, size, quality of wool, &c., but equally esteemed by stock raisers and connoisseurs. The usual custom of these breeders is, to hold an auction for the hiring of their rams for the season, and it is by no means a rare occurrence to obtain 50 and 60 guineas for the season's use of one Tup or Ram.

Also, Five Ewes, of the following pedigree:

"Sire—Lord Clifden, winner of Bath and West of England and Royal Agricultural Society
"of England prizes, bred by the late Pryce Wm. Bowen, of Shrawardine Castle.

"Sire of Lord Clifden—Patentee, the prime winner of Royal Agricultural Society of "England, by old Patentee, the prime winner of Royal Agricultural Society of England. Dam "of Lord Clifden by Chester Billy, winner of two first prizes of Royal Agricultural Society of "England.

"Dam of Ewes.—Ewes bred by Messrs. Bowen & Jones, Ensdore House, Shrewsbury, one "of the original flocks on which the Shropshire sheep are founded."

To distribute a good breed of sheep among sheep raisers, lambs, ewes and bucks are sold at moderate prices, and owing to the purity of the stock, there is great demand for them from all parts of the country. The proceeds from sales, as above stated, exceed the cost of maintaining the flock and importing new specimens.

In an Appendix will be found a statement of the living birds and animals in captivity at the Central Park during the year.

A schedule is annexed showing 214 donations received during the year, and added to the collection at the Central Park, with the names of the donors. Among the most rare of these are the following:

From T. Bailey Meyers, Esq., one Marmoset Monkey.

From H. Schuber, Esq., of Panama, one Guanaco, from Bolivia.

From W. P. Mellen, Esq., two Prong-horn Antelopes.

From Columbus Smith, Esq., one American Bison.

From Hon. August Belmont, two Virginia Deer and three Wild Geese.

From A. H. Barney, Esq., one Fallow Deer.

From W. De Peyster, Esq., one Red and Yellow Macaw.

From Hon. Robert B. Roosevelt, two Golden Eagles.

From Hon. Wm. G. Bergen, one Bald Eagle.

From Hon. Hamilton Fish, one White-crested Guan, and one Tiger Bittern.

From Admiral S. W. Godon, U. S. N., one Bronzed Guan.

From J. Brice, Esq., two Albino English Pheasants.

The following detailed statements give the number of pedestrians, equestrians, and vehicles entering the Central Park during the year 1870, and the gates of entrance, exhibiting an increase of 1,070,470 visitors over those of the year previous.

The largest number of Pedestrians entering the Park in any one month was in July.....	516,263
The largest number of Equestrians entering the Park in any one month was in August..	13,966
The largest number of Vehicles entering the Park in any one month was in September..	216,155
The largest number of Velocipedes entering the Park in any one month was in May...	228
Allowing two extra for each Vehicle, the number of Visitors in 1870 was.....	8,421,427

Table of the Number of Visitors at each Entrance of the Park for each month during the year.

PEDESTRIANS.

MONTHS.	59th st. and 5th av.	64th st. and 5th av.	72d st. and 5th av.	79th st. and 5th av.	90th st. and 5th av.	59th st. and 6th av.	59th st. and 7th av.	50th st. and 8th av.	72d st. and 8th av.	85th st. and 8th av	96th st. and 8th av	100th st. and 8th av.	110th st. and 6th av.
January	42,176	20,714	7,552	7,539	3,539	17,521	17,149	19,138	3,168	772	418	682	3,915
February	41,838	19,006	5,970	6,197	1,876	15,426	11,231	18,177	2,011	1,044	308	509	3,555
March	35,458	18,663	6,281	4,749	2,112	14,469	13,365	15,620	2,035	1,071	348	536	3,757
April	65,105	16,026	14,324	12,514	3,722	39,300	38,606	32,300	4,663	1,598	457	684	5,353
May	95,515	21,859	20,285	13,890	5,393	65,148	56,558	78,149	8,804	2,171	723	1,105	6,934
June	104,810	27,897	19,457	17,186	5,099	75,897	84,581	108,562	12,028	2,447	822	1,418	7,416
July	119,403	30,690	40,038	23,056	8,536	83,452	79,140	106,522	13,334	3,329	1,075	1,563	6,119
August	83,041	27,681	31,620	21,494	19,314	31,168	75,818	59,748	21,267	4,559	391	1,837	6,288
September	118,198	14,136	22,774	17,157	17,724	47,049	57,852	94,442	12,741	2,064	2,885	3,118	8,158
October	123,347	13,861	29,703	10,494	25,530	23,158	26,854	24,877	10,146	1,244	713	2,547	4,462
November	35,754	29,479	8,454	4,437	5,360	14,549	36,447	15,363	6,437	.....	4,434	2,926	3,110
December	83,431	18,283	14,614	5,938	4,924	22,968	18,528	62,317	10,255	434	285	1,869	3,954
Totals	952,076	258,295	221,083	144,151	103,129	450,105	516,135	635,215	106,889	20,733	12,859	18,794	63,021

Table of the Number of Visitors, etc.—(Continued.)

EQUESTRIANS.

Months.	59th st. and 5th av.	72d st. and 5th av.	79th st. and 5th av.	90th st. and 5th av.	59th st. and 8th av.	72d st. and 8th av.	85th st. and 8th av.	96th st. and 8th av.	100th st. and 8th ave.	110th st. and 6th av.
January	1,181	225	90	179	433	110	23	25	10	426
February	1,731	113	59	195	463	53	6	13	3	384
March	2,558	149	277	218	581	38	29	21	17	513
April	4,353	281	209	304	7[illegible]8	145	46	89	15	755
May	4,521	222	221	382	9[illegible]2	60	74	122	19	974
June	3,947	236	108	306	9[illegible]7	173	50	77	14	1,011
July	3,752	223	299	278	607	92	104	21	6	623
August	11,549	239	282	147	799	136	104	2	96	612
September	3,475	313	161	387	9[illegible]5	343	82	84	413	215
October	2,816	398	176	364	702	77	16	19	160	790
November	3,092	310	170	466	1,070	38	.....	32	123	839
December	2,650	184	282	519	801	310	10	66	185	373
Totals	46,265	2,893	2,334	3,745	8,898	1,575	544	571	1,061	7,625

VEHICLES.

Months.	59th st. and 5th av.	72d st. and 5th av.	79th st. and 5th av.	90th st. and 5th av.	59th st. and 8th av.	72d st. and 8th av.	85th st. and 8th av.	96th st. and 8th av.	100th st. and 8th av.	110th st. and 6th av.
January	29,300	1,687	2,096	1,307	4,309	982	367	456	758	29,088
February	23,994	1,729	1,578	1,644	4,504	360	427	267	607	23,468
March	34,477	2,179	3,235	1,824	6,188	743	518	337	683	32,598
April	53,435	5,113	4,645	4,042	7,183	1,115	602	498	870	49,230
May	52,912	4,117	4,063	4,344	11,322	736	646	596	995	55,306
June	68,471	3,549	2,710	4,034	12,586	1,883	920	582	1,076	69,375
July	50,982	3,085	5,708	5,606	10,535	1,540	1,229	646	922	62,192
August	54,803	5,513	4,108	5,363	12,944	1,200	1,774	435	1,597	60,377
September	89,904	9,514	3,997	19,365	17,764	2,694	755	551	2,547	69,064
October	98,416	22,821	3,205	14,391	16,551	1,095	162	789	2,528	51,968
November	38,272	4,593	1,059	14,362	16,397	628	.....	484	3,094	62,255
December	33,376	3,305	1,731	27,363	8,435	647	32	462	2,004	36,010
Totals	628,342	67,265	38,135	103,645	128,768	13,623	7,432	6,043	17,681	600,031

Table of the Number of Visitors, etc.—(Continued.)

SLEIGHS.

Months.	59th st. and 5th av.	72d st. and 5th av.	79th st. and 5th av.	90th st. and 5th av.	59th st. and 8th av.	72d st. and 8th av.	85th st. and 8th av.	96th st. and 8th av.	100th st. and 8th av.	110th st. and 6th ave.
January	10	.....	.....	.....	.....	.....	.....	.....	.....	.....
February	6,164	220	174	292	1,179	53	105	34	134	7,021
March	3,874	172	114	195	712	96	72	39	71	4,940
April	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
May	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
June	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
July	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
August	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
September	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
October	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
November	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
December	6,534	317	239	283	593	19	.....	.....	92	1,991
Totals	16,572	709	527	770	2,484	168	177	73	297	14,852

VELOCIPEDES.

Months.	59th st. and 5th av.	72d st. and 5th av.	79th st. and 5th av.	90th st. and 5th av.	64th st. and 5th av.	59th st. and 6th av.	59th st. and 7th av.	59th st. and 8th av.	72d st. and 8th av.	110th st. and 6th av.
January	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
February	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
March	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
April	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
May	228	.....	.....	.....	.....	.....	.....	.....	.....	.....
June	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
July	4	.....	.....	.....	.....	.....	.....	.....	.....	.....
August	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
September	2	.....	.....	.....	.....	.....	.....	.....	.....	.....
October	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
November	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
December	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Totals	234	.....	.....	.....	.....	.....	.....	.....	.....	.....

TABLE *of the Number of Visitors at the Park during each month for the past eight years.*

MONTHS.	1863.			1864.			1865.			1866.		
	Pedestrians.	Equestrians.	Vehicles.	Pedestrians.	Equestrians.	Vehicles.	Pedestrians.	Equestrians.	Vehicles.	Pedestrians.	Equestrians.	Vehicles.
January	51,462	3,952	38,069	555,668	3,953	83,246	658,741	1,641	77,364	240,964	2,755	99,917
February	49,080	3,489	49,344	134,322	6,244	55,038	163,383	4,472	70,768	290,191	3,897	63,329
March	41,064	4,490	44,520	90,630	7,635	67,757	77,743	6,191	86,548	64,200	5,943	73,754
April	115,764	10,094	79,095	95,386	14,192	87,575	188,019	11,344	125,864	77,141	3,882	53,028
May	137,999	449	3,618	151,678	13,533	147,344	191,527	10,386	126,789	269,604	12,394	165,363
June	159,779	12,630	110,792	121,574	14,802	111,253	299,974	11,874	153,279	375,160	13,390	163,563
July	89,160	9,378	92,363	380,165	8,085	242,511	467,729	8,750	146,023	313,851	6,372	130,924
August	189,366	12,250	115,970	186,016	4,778	82,924	467,665	9,705	157,756	330,011	5,321	115,691
September	181,850	9,211	163,600	225,256	5,288	92,159	340,355	9,985	180,526	356,881	7,331	154,127
October	150,418	10,035	108,531	148,488	9,395	98,112	205,444	10,429	104,709	242,641	12,135	363,135
November	75,321	9,195	50,990	87,291	9,308	92,361	94,578	8,097	124,431	125,049	8,582	134,618
December	227,163	5,551	65,558	118,625	3,184	81,281	63,898	5,486	71,184	327,199	4,755	62,459
Totals	1,469,335	90,724	922,450	2,295,199	100,397	1,148,161	3,219,056	98,360	1,425,241	3,412,892	86,757	1,579,808

STATEMENT *showing Sunday attendance at the Park, by months, during the years* 1864, 1865 *and* 1866.

MONTHS.	1864.				1865.				1866.			
	Pedestrians.	Equestrians.	Vehicles.	Sleighs.	Pedestrians.	Equestrians.	Vehicles.	Sleighs.	Pedestrians.	Equestrians.	Vehicles.	Sleighs.
January	134,738	757	9,881	11,097	133,477	201	6,569	4,404	129,200	323	8,363	6,453
February	68,355	1,231	14,972	.....	21,755	319	7,293	.....	71,533	486	9,403	.....
March	59,458	1,755	16,911	.....	38,279	1,152	16,840	.....	30,657	782	12,332	.....
April	50,245	2,631	15,552	.....	107,543	2,232	27,346	.....	73,064	1,432	32,702	.....
May	115,493	1,880	30,601	.....	58,988	1,186	17,122	.....	149,846	1,960	28,482	.....
June	74,707	1,997	16,561	.....	118,982	1,663	26,509	.....	121,849	1,025	20,297	.....
July	135,673	1,416	29,486	.....	171,738	1,626	31,097	.....	125,517	1,289	25,655	.....
August	55,293	540	11,400	.....	106,430	1,595	27,476	.....	127,784	954	24,184	.....
September	51,287	576	12,962	.....	107,416	2,153	34,205	.....	153,624	1,496	37,637	.....
October	46,698	1,196	16,749	.....	90,522	1,832	32,736	.....	104,022	1,312	22,117	.....
November	32,634	1,478	15,728	.....	40,630	1,386	24,450	.....	47,440	1,144	20,364	.....
December	57,542	403	7,793	9,624	26,113	810	10,748	4,989	101,536	886	13,684	26
Totals	882,123	15,860	198,590	20,721	1,021,873	16,155	262,373	9,393	1,226,072	13,080	255,220	6,479

STATEMENT *showing Sunday attendance at the Park, by months, during the years* 1867 *and* 1868.

MONTHS.	1867.				1868.			
	Pedestrians.	Equestrians.	Vehicles.	Sleighs.	Pedestrians.	Equestrians.	Vehicles.	Sleighs.
January	116,570	226	5,488	17,279	193,167	421	8,245	.....
February	24,666	526	7,296	969	81,094	185	3,170	6,[illegible]4
March	43,699	1,305	19,822	2,746	65,473	715	12,245	.....
April	161,768	2,460	30,759	.....	57,082	1,254	17,441	.....
May	117,852	1,666	23,982	.....	136,790	1,599	28,302	.....
June	129,725	1,234	23,821	.....	161,734	939	30,336	.....
July	123,578	984	27,589	.....	105,315	875	20,462	.....
August	130,676	812	24,402	.....	179,695	949	28,253	.....
September	161,115	1,365	32,096	.....	69,309	849	20,751	.....
October	104,791	1,285	33,094	.....	105,524	1,281	29,748	.....
November	30,657	929	16,966	.....	75,287	1,223	30,527	.....
December	25,807	749	11,791	8,322	25,374	203	4,193	2,959
Totals	1,170,898	13,540	257,066	29,316	1,237,844	10,494	233,673	8,603

STATEMENT *showing Sunday attendance at the Park, by months, during the years* 1869 *and* 1870.

Months.	1869.					1870.				
	Pedestrians.	Equestrians.	Vehicles.	Sleighs.	Velocipedes.	Pedestrians.	Equestrians.	Vehicles.	Sleighs.	Velocipedes.
January	113,090	625	14,813	6,347	.....	71,517	487	16,107	.....	.....
February	54,495	671	12,500	1,247	.....	60,492	593	13,703	137	.....
March	56,217	675	18,683	.....	.....	44,100	503	10,178	1,524	.....
April	101,426	1,215	24,006	.....	400	99,299	859	19,256	.....	.....
May	106,866	904	28,720	.....	245	178,103	1,227	29,188	.....	.....
June	144,797	635	15,626	.....	.....	197,074	797	30,456	.....	.....
July	162,572	577	23,297	.....	.....	148,887	899	26,624	.....	.....
August	219,684	819	31,005	.....	.....	103,968	558	28,538	.....	.....
September	104,901	776	23,149	.....	5	118,391	891	41,772	.....	.....
October	89,629	807	20,272	.....	.....	75,937	2,496	40,477	.....	.....
November	52,847	668	21,188	.....	.....	31,562	945	22,527	.....	.....
December	18,855	216	5,554	76	.....	32,931	665	22,494	.....	.....
Totals	1,225,379	8,588	238,893	7,670	650	1,162,261	10,920	301,320	1,661	.....

PUBLIC SQUARE OR PLACE KNOWN AS MORNINGSIDE PARK.

The Commissioners of Estimate and Assessment appointed by the Supreme Court in the year 1869, upon the application of the Commissioners of Central Park, to assess the damage and benefit for acquiring title to the public square or place known as Morningside Park, laid out by said last named Commissioners, made their report, which was confirmed by the Supreme Court, on the twenty-eighth day of July, 1870.

The cost of the land included within the limits of this public square or place is $1,716,186.40, of which the sum of $823,499.40 was assessed upon the city, and $892,687 laid on the property benefited.

PUBLIC SQUARE OR PLACE AT JUNCTION OF THE BOULEVARD AND SIXTY-THIRD STREET.

The proceedings for taking the triangular piece of ground, bounded by the Boulevard, Sixty-third street, and Ninth avenue, declared to be a public place by the provisions of chapter 689, Laws of 1867, were confirmed by the Supreme Court on the twenty-second day of December, 1870. The total amount awarded was $153,400, of which $76,900 was assessed on the property benefited, and $76,500 assessed against the city.

NORTH END OF ISLAND.

Kingsbridge Road Widening and Straightening.

Pursuant to the provisions of Chapter 565, Laws of 1865, the Department directed that proceedings be taken to acquire title to all the lands embraced within the lines of and required for the widening and straightening of Kingsbridge road, from the southerly side of One Hundred and Fifty-fifth street to the Harlem river, near Kingsbridge, and the Supreme Court appointed Thomas J. Creamer, Henry Parsons, and James H.

Coleman, Commissioners of Estimate and Assessment, for that purpose, on the tenth day of October, 1870.

PUBLIC SQUARES OR PLACES KNOWN AS FORT WASHINGTON POINT PARKS.

At the request of property-holders at the north end of the Island, the proceedings authorized by the Department to acquire title to the public squares or places known as Fort Washington Point Parks, laid out by the Commissioners of Central Park, were, by a resolution of the Department, adopted December 6, 1870, discontinued.

By the provisions of Chapter 290, Laws of 1871, these public squares or places were closed and discontinued on the map or plan of the city.

THE BOULEVARD, FROM THE CIRCLE AT FIFTY-NINTH STREET TO ONE HUNDRED AND FIFTY-FIFTH STREET.

The total expenditure made on account of regulating, grading, and improving the Boulevard, from the Circle at Fifty-ninth street to One Hundred and Fifty-fifth street, since the commencement of the work on the twenty-first day of September, 1868, to the thirty-first day of December, 1870, is $1,340,520.53.

Portions of this improvement have been opened to public use, and the work is being vigorously pressed in its entire length, and will be completed at an early day.

THE SIXTH AVENUE, NORTH OF THE CENTRAL PARK.

The work of regulating, grading, and improving the Sixth avenue, from the Central Park at One Hundred and Tenth street, to the Harlem river, is rapidly approaching completion. The total expenditure on account of this work from July 7, 1868, to the thirty-first day of December, 1870, is $394,344.17,

of which the amount of $217,465.69, for grading work, separate from that of superstructure work, has been transmitted to the Board of Assessors for assessment and collection.

THE SEVENTH AVENUE, NORTH OF THE CENTRAL PARK.

On account of the work of regulating, grading, and improving the Seventh avenue, from the Central Park at One Hundred and Tenth street to the Harlem river, there has been expended since the commencement of the work, which is being done by contracts made with Messrs. J. H. Sullivan & Co. and Thomas Crimmins, up to the thirty-first day of December, 1870, the amount of $516,683.35, which does not include a balance of percentage of $93,756, reserved under the contracts.

THE AVENUE ST. NICHOLAS, NORTH OF THE CENTRAL PARK.

The expenditure on account of the work of regulating, grading, and improving the Avenue St. Nicholas, from the Central Park at One Hundred and Tenth street to One Hundred and Fifty-fifth street, up to the thirty-first day of December, 1870, is $81,821.81.

IMPROVEMENT OF CERTAIN PARTS OF WESTCHESTER COUNTY, HARLEM RIVER AND SPUYTEN DUYVIL CREEK.

Pursuant to the provisions of an act entitled "An act for the improvement of certain parts of Westchester County, Harlem river, and Spuyten Duyvil creek," passed May 11, 1869, and an act in part amendatory thereof, entitled "An act to provide a plan for the improvement of portions of the Counties of Westchester and New York, and to provide facilities of communication between said counties," passed May 19, 1870, it was made the duty of the Department to survey that part of the County of Westchester lying west of the New York, Harlem, and Albany Railroad, south of the southerly line of

the Village of Yonkers, and a line in continuation thereof, for the purpose of preparing maps, plans, and profiles showing such changes and improvements as may be made in existing streets, avenues and roads within such area, with benefit to the property affected and to the public interest, and for establishing the location of such streets, avenues, roads, and public squares and places as may be laid out or discontinued with like benefit; to provide plans for the proper sewerage and drainage of the land within the said area, and for the supply of pure and wholesome water therefor; to prepare plans for the improvement of the Harlem river and Spuyten Duyvil creek, plans and locations of all bridges, tunnels, and other means of transit across or under said river or creek, and to the building or constructing of any and all such bridges, tunnels, etc.; also to make requisition on the Counties of New York and Westchester to obtain the moneys necessary to be raised by said Counties respectively, to carry out the provisions of the said acts. The whole area embraced in said acts covers about 8,400 acres; the preliminary surveys and maps of about 4,000 acres have been made, and are being collated and reduced to working form preparatory to laying out the roads, avenues, etc.

The receipts and expenditures on account of this work during the year are as follows:

Town of West Farms.

Receipts	$10,000 00
Disbursements	9,865 26
Balance	$134 74

Town of Yonkers.

Receipts	$10,000 00
Disbursements	9,948 40
Balance	51 60

Estimates for carrying on the surveys during the year 1871 were made and transmitted to the Supervisors of the County, on the 23d day of November, as follows:

Town of West Farms	$20,000 00
Town of Yonkers	20,000 00
Total	$40,000 00

The avails of the amount required from the Town of West Farms will be reduced by the certificates of indebtedness issued by the Supervisor and Town Clerk of West Farms to the amount of $9,355.10, for surveys made under the late Commissioners of the Central Park in said town.

HARLEM RIVER AND SPUYTEN DUYVIL CREEK IMPROVEMENT.

Balance April 20, 1870		$9,371 80
The payments on this account from April 20th to December 31, 1870, are as follows.		
Surveys, engineers, etc.	$845 78	
Stationery and drawing materials	73 84	
		919 62
Balance		$8,452 18

PURCHASES.

The purchases of tools. materials, etc., under the immediate supervision of this Bureau, have been made judiciously and

economically, the articles in use being bought at wholesale prices, and in every instance at the lowest market rates. No little difficulty has been experienced in procuring the necessary materials required in the construction of the Boulevard and avenues, large quantities of rock and earth filling and broken stone for road beds being needed, and the scarcity of the same in the immediate vicinity of these works have been found very embarrassing.

PROPERTY CLERK.

The Property Clerk's Department attached to this Bureau is not only responsible for the receipt of the property of the Department, but for its safe keeping and delivery to the force as required in the work. An inventory of tools, materials, etc., the property of the Department, prepared by the Property Clerk annually, is on file.

He has also the charge of the Pound for stray animals, and makes monthly returns to the Treasurer of all moneys received for the same. Sales of grass, and of old materials deemed by the Treasurer unfit for use, are returned weekly.

DISBURSING OFFICE.

The Disbursing office attached to this Bureau is under control of a gentleman who has been connected with that office for the past ten years.

In addition to the accounts incidental to the keeping of the time, preparation of the pay-rolls, and the disbursement of the moneys due thereon, that office has been charged with various duties, but all connected directly with the force employed.

The force of mechanics and laborers are paid once in two weeks. In making such payments arrangements have been made to inconvenience the work as little as possible; the time of

the force is economized to the fullest possible extent for the benefit of the Department.

A suitable wagon has been provided for the conveyance of the Disbursing Clerk, with the funds in his charge, protected by park-keepers, from point to point, where the various gangs are employed and the payments there made

BUREAU ATTACHÉS.

Immediately upon the organization of the Department, the labors of this Bureau were greatly increased in consequence of the jurisdiction of the Department being extended over all the public parks, squares, and places of the city.

It affords me much pleasure to acknowledge the fidelity and zeal which have characterized the labors of the gentlemen attached to this Bureau, each one in his particular capacity at all times evincing a desire to promote the advancement of the interests of the Department.

To my Assistant, Mr. E. P. Barker, I am particularly indebted; his long connection with the office rendering his services at all times invaluable.

GEO. M. VAN NORT,
Comptroller.

Dated, NEW YORK, May 1, 1871.

Projecting Rock.

Projecting Rock.

APPENDIX A.

APPENDIX A.

Statement in detail of the gifts, devises, and bequests, during the past year, for the purpose of embellishing or ornamenting the Park, and the names of the persons by whom the same are so given, devised, or bequeathed.

Miscellaneous.

1870.

January 20. Mr. J. H. Burleson, Ann Arbor, Mich., bark of the big tree of California.

February 1. Capt. B. F. Marsh, ship Rattler, one piece Sponge.

" 2. Mr. John Hamill, New York City, model of Fire Engine and Fire Cap.

" 17. Mr. T. W. C. Moore, New York City, one Ant Eater's Skin.

" 17. Master E. Callian, New York City, one specimen in alcohol—Alligator.

" 17. Hon. Vincent Colyer, Washington, D. C., one Seal Skin Canoe, from Alaska.

" 27. Master John Herdtmann, New York City, one model of Swiss Cottage.

March 8. Mr. T. P. Rousseau, New York City, one pair Elk Horns.

" 28. Mr. John Nichols, New York City, Map of the City of Jeddo, Japan.

1870.

April 8. Mr. Thomas Jacques, New York City, one prepared specimen—Iguana.

" 26. Dr. J. J. Hayes, Skull of a Narwhal.

" 26. Mr. F. Hanesen, Godhaven, Greenland, Skeleton of a Seal.

May 8. Mr. George W. Kline, New York City, three specimens, of Minerals.

" 14. Mr. E. F. Sanford, Brooklyn, N. Y., 11 specimens of Minerals.

" 15. Mr. George W. Kline, New York City, 1 collection of Minerals.

" 16. Mr. J. Anderson, New York City, 1 specimen of Fish in alcohol.

June 22. Mr. Frank Daulte, New York City, 1 collection of Fossil Shells.

" 37. Mr. John Seaman, New York City, 1 specimen in alcohol, Sea Maid.

October 8. Lieut. J. L. Mast, through Lieut. F. W. Ring, U. S. N., skeleton and skin of a Walrus.

November 9. Captain Horatio Nelson, steamship Cortes, 1 Hornet's Nest.

" 11. Mr. Peter Connolly, New York City, Horse Pistol found in Deep Gully, N. C., during the late war.

" 11. Mrs. Arnold Lustig, 1 piece of Shell and Chassepot Bullet picked up at Sedan.

December 15. Mr. H. Olliver, New York City, 1 skin, Cynocephalus.

Botanical.

1870.

January 10. Mr. Joshua Jones, New York City, 1 package Seeds.

February 17. Mr. Hugh Taylor, New York City, 1 Oleander.

April 8. Mr. John Cunningham, New York City, 1 package Mahogany Seed.

June 8. Mr. Ludwig Wiener, New York City, box of Plants from Cape of Good Hope.

" 8. Collection of Bermuda Grass.

July 6. Messrs. Spofford Brothers & Co., New York City, specimens of the Peta Plant.

Animals.

1870.

January 3. Mr. Donald McMullan, 1 Muskrat (D).

" 7. Mr. William Golding, West Hoboken, N. J., 2 White Mice (D).

" 9. Master Leander Powers, New York City, 2 Marmosets (1 D).

" 7. Mr. William Ward, New York City, 1 Hawk.

" 13. Mr. Roswell D. Hatch, New York City, 1 Angora Goat.

" 15. Mr. F. Cook, New York City, 1 Red Fox (D).

" 22. Mr. J. H. Burleson, Ann Arbor, Mich., 1 Horned Owl.

" 28. Capt. Horatio Nelson, steamship Cortes, 6 Quail (D).

Feb. 3. Dr. George S. Kimble, Mifflinsburg, Pa., 1 Wild Cat (D).

" 5. Mr. Fritz Uhlenhaut, New York City, 5 White Mice (D).

1870.

Feb. 9. Mr. Warren Drummond, Woodbridge, N. J., 1 Goshawk (D).

" 9. Lieutenant E. A. Earnest, Raleigh, N. C., 1 Black Bear.

" 11. Mr. Otis W. Booth, New York City, 3 Gray Squirrels.

" 11. Master D. C. Remmington, Jersey City, N. J., 1 Guinea Pig (D).

" 16. Mr. J. Brice, New York City, 1 pair Albino Pheasants.

" 17. Mr. Granville Whittlesey, New York City, 1 Mink (D).

March 1. Mr. W. H. Radford, New York City, 12 Quail.

" 3. Mr. M. D. Vandenveyde, New York City, 1 Horned Toad (D).

" 7. Mr. W. H. Radford, New York City, 2 Quail.

" 15. Master John M. Gamble, Morristown, N. J., 1 White-faced Monkey.

April 1. Master Lawrence Jacob, Concord, N. H., 1 Raccoon.

" 1. Mr. B. F. Crane, New York City, 1 Ferret.

" 9. Messrs. J. M. Sublett & Co., Richmond, Va., 2 Deer (1 D).

" 20. Mr. E. D. Seeley, East Bloomfield, N. J., 1 Horned Owl.

" 20. Mr. W. H. S. Wood, New York City, 1 small Alligator.

" 25. Mr. C. D. Eckerson, Saddle River, N. J., 1 Barred Owl.

May 4. Hon. August Belmont, New York City, 2 Virginia Deer.

1870.

May 5. Mr. John Akhurst, Brooklyn, N. Y., 1 Sea Gull (D).

" 12. Mr. J. W. Manning, New York City, 1 Woodchuck (D).

" 13. Mr. A. Beekman, New York City, 1 Horned Owl (D).

" 14. Hon. August Belmont, New York City, 3 Canada Wild Geese.

" 17. Mr. Alfred Mason, New York City, 1 Coatimundi.

" 17. Mr. A. G. Spies, Brooklyn, N. Y., 2 Gray Foxes.

" 17. Mr. A. H. Barney, New York City, 1 Albino Fallow Deer.

" 17. Mr. J. Brice, New York City, 3 Silky Fowls (D).

" 20. Mr. Seymour Burrell, New York City, 1 Monkey.

" 20. Mrs. Joanna Ebbitts, New York City, 1 Raccoon.

" 21. Mr. Edward Cauret, New York City, 1 Painted Turtle (D).

" 22. Mr. George W. Kline, New York City, 3 Turtles (D).

" 23. Mrs. M. L. Leavenworth, New York City, 1 pair White Rats.

" 26. Dr. Noah C. Levings, New York City, 1 Robin.

" 28. Mr. Frederick Simons, New York City, 1 Woodchuck (D).

" 31. Master Frank Schneider, New York City, 1 Horned Owl.

June 1. Mr. William J. Schofield, New York City, 8 White Rats.

" 3. Mr. T. Bailey Meyers, New York City, 1 Marmoset.

" 8. Mr. C. Ryan, New York City, 30 Terrapin.

" 9. Capt. W. S. Cheeseman, New York City, 1 Purple Gallinule (D).

1870.

June 10. Mr. John W. Kelso, New York City, 1 Loon or Great Northern Diver.

" 14. Master William C. Bell, New York City, 1 Rabbit.

" 15. Dr. William W. Strew, New York City, 2 Young Raccoons (D).

" 28. Mr. James Hutchinson, Greenpoint, L. I., 1 Pelican (D).

" 29. Mr. E. R. Kirk, New York City, 1 Horned Toad.

" 29. Mr. Stephen H. Feeks, Champaign, Ills., 2 Raccoons.

" 29. Mr. Henry Macy, New York City, 1 Alligator.

July 6. Mr. Thomas Dunlap, New York City, 1 Squirrel.

" 14. Mr. James Kent, Jr., Fishkill, N. Y., 1 Hawk.

" 14. Mr. O. Kofstochny, Jersey City, N. J., 1 Alligator.

" 19. Mr. F. F. Georger, New York City, 2 Parrakeets (1 D).

" 23. Mr. Edward H. Bell, Antistown, Penn., 1 Swan (D).

August 1. Mr. Charles Arent, New York City, 1 Black Squirrel.

" 2. Master Henry Kroeger, New York City, 1 pair Rabbits.

" 4. Mr. H. E. Witherspoon, New Orleans, 2 Loons (D).

". 13. Mr. Marshall H. Rose, New York City, 1 Black Squirrel.

" 15. Capt. E. Bartlett, bark St. Peter, 3 Hawk's-bill Turtles (D).

" 15. Mrs. W. P. Walker, New York City, 1 Red Fox.

" 24. Mr. W. De Peyster, New York City, 1 Macaw.

1870.

Sept. 5. Dr. M. Cook, Utica, N. Y., 1 White-faced Monkey.

" 6. Miss Margaret McCabe, New York City, 1 Robin.

" 14. Mr. Stephen McIntosh, Staten Island, 1 Gray Squirrel.

" 21. Master Edward Gerstle, New York City, 1 Ring Dove.

" 21. Mr. John Daly, New York City, 1 Chipmunk (D).

October 6. Dr. S. W. Francis, Newport, R. I., 2 Guinea Pigs, 1 Snapping Turtle (D).

" 6. Colonel Figyelmesy, U. S. Consul at Demerara, 1 Boa Constrictor (D).

" 6. Mr. Sanders, New York City, 2 Alligators.

" 10. Mr. Franklin Ames, 1 Rabbit.

" 12. Mr. John W. Vaughn, Newbern, N. C., 1 Black Bear.

" 14. Mr. Thomas F. Booth, New York City, 1 Horned Owl.

" 15. Hon. Hamilton Fish, Washington, D. C., 2 Curassows.

" 15. 1 Crane.

" 24. Hon. Hamilton Fish, Washington, D. C., 6 Wild Turkeys.

" 25. Col. Rhodes, Quebec, 1 Loon (D).

" 28. Hon. Hamilton Fish, Washington, D. C., 1 Bittern.

Nov. 4. Capt. Horatio Nelson, steamship Cortes, 1 Bird Hawk.

" 7. Mr. James Costello, New York City, 2 Fan-tailed Pigeons.

" 17. Mr. Edward Grimm, New York City, 1 Loon (D).

1870.

Nov. 18. Dr. John Frederick, New York City, 1 Muscovy Duck.

" 23. Mr. W. P. Millen, Brooklyn, L. I., 2 Antelopes.

" 29. Mr. Patrick Donohoe, New York City, 1 Owl.

Dec. 7. Mr. P. Flannagan, New York City, 2 Spanish Rabbits.

" 13. Mr. S. M. Harris, New York City, 1 Red Fox.

" 17. Rev. T. J. Mooney, New York City, 1 Owl.

" 19. Mrs. H. M. Heuberer, New York City, 1 White Calf.

" 19. Hon. William Bergen, New York City, 1 Eagle.

" 19. Mr. Joseph P. Herd, Rockdale, Pa., 2 White Guinea Fowls.

" 27. Mr. William Crozier, Northport, L. I., 1 Shepherd's Dog.

Rock Group.

West of the Terrace.

Appendix B.

APPENDIX B.

GEORGE M. VAN NORT, Esq.,

Comptroller Department of Public Parks:

SIR,—I herewith submit the following, being a list of animals in the Menagerie, from April 1, 1870, to April 1, 1871, together with the names of species that have been exhibited for the first time; also the number of animals bred on the Park.

I am gratified to state that the animals have been benefited greatly by their removal to the buildings recently constructed for their use.

Very respectfully,

W. A. CONKLIN.

April, 1871.

Mammalia.

Order: QUADRUMANA.

Family: *Simiadæ.*

Genus: *Semnopithecus.*

S. maurus (Schreb.), Moor Monkey. *Hab.* Java. *a.* Deposited for exhibition September 26, 1870.

Genus: *Cercopithecus.*

C. callitrichus, Is. Geoff., Green Monkey. *Hab.* West Africa. *a, b.* Purchased January 17, 1871.

C. lalandii, Is. Geoff., Vervet Monkey. *Hab.* South Africa. *a.* Received in exchange. *b.* Purchased March 21, 1871.

C. griseo-viridis, Desm., Grivet Monkey. *Hab.* Northeast Africa. *a.* Presented by Mr. Seymour Bunell, May 20, 1870. *b.* Purchased March 21, 1870.

Genus: *Macacus.*

M. erythræus (Schreb.), Rhesus Monkey. *Hab.* India. *a.* Deposited for exhibition March 24, 1871.

Genus: *Cynocephalus.*

C. porcarius (Bodd.), Chacma Baboon. *Hab.* South Africa. *a.* Deposited for exhibition.

C. mormon, Desm., Mandrill. *Hab.* West Africa. *a.* Purchased January 17, 1871.

Family: *Cebidæ.*

Genus: *Ateles.*

A. ater, F. Cuv., Black-faced Spider Monkey. *Hab.* Brazil. *a.* Purchased March 21, 1871.

Genus: *Cebus.*

C. apella (Briss.), Brown Capuchin Monkey. *Hab.* Guiana. *a.* Presented March, 1871.

C. hypoleucus, Geoff., White-throated Sapajou. *Hab.* Central America. *a.* Presented by Master John M. Gamble, March 15, 1870. *b.* Presented by Miss Maria L. Wright, March 6, 1871,

Genus: *Hapale.*

H. jacchus (Linn.), Marmoset Monkey. *Hab.* Brazil. *a*, *b.* Presented by Master Leander Powers, January 9, 1870. *c.* Presented by T. Bailey Meyers, Esq., June 3, 1870.

Order: CARNIVORA.

Family: *Felidæ.*

Genus: *Felis.*

F. leo, Linn., Lion. *Hab.* Africa and Southwestern Asia. *a–c.* Deposited for exhibition December 1, 1870. *d, e.* Deposited for exhibition February 2, 1871. *f, g.* Deposited for exhibition March 16, 1871.

F. varius, Gray., African Leopard. *Hab.* Africa. *a.* Presented by A. A. Silver, Esq., U. S. Commercial Agent, Africa, October 3, 1868. *b.* Deposited for exhibition March 16, 1871.

F. leopardus, Linn., Indian Leopard. *Hab.* Asia. *a.* Deposited for exhibition, 1869.

F. leopardus melas, Linn., Black Leopard. *Hab.* Asia. *a.* Deposited for exhibition February 24, 1871.

F. concolor, Linn., Puma or American Panther. *Hab.* North and South America. *a.* Presented by Brigadier-General N. B. McLaughlin, U. S. A., November 17, 1868. *b.* Presented by Philip Figyelmesy, Esq., U. S. Consul, Demerara, April 28, 1869. *c, d.* Born in the menagerie, September 2, 1870. *e.* Purchased January 12, 1871.

F. pardalis, Linn., Ocelot. *Hab.* Texas and South America. *a.* Presented by Mr. Philip Nemegyei, May 8, 1866.

F. domesticus, Linn., Angora Cat. *Hab.* Asiatic Turkey. *a.* Presented by Mr. O'Brien, June 2, 1869.

Genus: *Lynx.*

Lynx rufus, Raf., Wild Cat. *Hab.* North America. *a.* Presented by Captain M. S. Woodhull, steamship Manhattan, August 15, 1867.

Family: *Canidæ*

Genus: *Canis.*

C. latrans, Say, Praire Wolf. *Hab.* Western United States. *a.* Presented by Mr. A. M. Allerton, June 25, 1864. *b.* Presented by Mr. W. H. Beard. March 7, 1871.

C. familiaris, Linn., Domestic Dog. *Hab.* ———. *a.* Newfoundland var., presented by Mr. Milton Caldwell, Sept. 21, 1869. *b.* Greyhound var, presented by Mr. David Auchenback, July 27, 1866. *c.* Shepherd var., presented by Mr William Crozier, December 27, 1870. *d, e.* Pug var., presented by Mr. James Boarer, February 25, 1871.

Genus. *Vulpes.*

V. fulvus, Desm., Red Fox. *Hab.* North America. *a.* Presented by Mr. S. M. Harris, December 13, 1870.

V. virginianus, Rich., Gray Fox. *Hab.* United States. *a, b.* Presented by Mr. A. G. Spies, May 17, 1870. *c.* Presented by Mr. William Class, March 15, 1871.

Family: *Viverridæ.*

Genus: *Viverra.*

V. rasse, Horsf., Rasse. *Hab.* Java. *a.* Presented by Mr. Charles J. Wirner, Aug. 31, 1868.

Genus: *Herpestes.*

H. griseus (Geoff.), Gray Ichneumon. *Hab.* India. *a.* Presented by Mr. Fred. A. Farrell, November 29, 1869.

Family: *Mustelidæ.*

Genus: *Putorius.*

P. vison, Rich., Common Mink. *Hab.* United States. *a.* Presented by Mr. Granville Whittlesey, February 17, 1870.

P. furo Linn., Ferret. *Hab.* Spain and Barbary. *a–c.* Pre-

CENTRAL PARK MUSEUM.

(Zoological Department.)

sented by Master George W. Cornell, February 13, 1869. *d.* Presented by Mr. B. F. Crane, April 1, 1870.

Family: *Ursidæ.*

Genus: *Procyon.*

P. lotor, Storr., Raccoon. *Hab.* United States. *a*, *b.* Presented by Mr. James Y. Gibson, October 12, 1868. *c.* Presented by Mr. D. A. Turner, February 20, 1869. *d.* Presented by Mr. Robert J. Savage, April 19, 1869. *e.* Presented by Captain W. L. Pennington, May 7, 1869. *f.* Presented by Mr. John Hormamm, September 16, 1869. *g.* Presented by Master Lawrence Jacob, April 1, 1870.

Genus: *Nasua.*

N. nasica (Linn.), Coati. *Hab.* South America. *a.* Presented by John Robinson, M. D., January 2, 1866.

Genus: *Ursus.*

U. horribilis, Ord., Grizzly Bear. *Hab.* Western United States. *a.* Presented by Mr. T. C. Durant, November 28, 1868. *b.* Presented by Major-General William Meyers, U. S. A., October 21, 1869.

U. americanus, Pall., Black Bear. *Hab.* North America. *a.* Presented by Mr. C. A. Bussell, October 27, 1866. *b.* Presented by Hon. J. D. Caton, May 17, 1867. *c.* Presented by Mr. John J. Crooke, August 8, 1868. *d.* Presented by Colonel E. H. Durfee, U. S. A., August 24, 1868. *e.* Deposited for exhibition, April 24, 1869. *f.* Presented by Hon. John T. Deweese, June 21, 1869. *g.* Presented by Lieutenant C. A. Earnest, U. S. A., February 9, 1870.

U. americanus, var. *cinnamoneus*, Aud. and Bach., Cinnamon Bear. *Hab.* Western United States. *a*, *b* Presented by Major-General Winfield S. Hancock, U. S. A., September 2, 1869.

U. malayanus, Raffl., Sun Bear. *Hab.* India. *a.* Presented by Washington Irving, U. S. N., September 12, 1868.

Order: RODENTIA.

Family: *Sciuridæ.*

Genus: *Sciurus.*

S. vulpinus (Linn.), Southern Fox Squirrel. *Hab.* Southern United States. *a.* Presented by Mr. William McFarland, August 30, 1869.

S. carolinensis, Gm., Gray Squirrel. *Hab.* United States. *a*, *b.* Presented by Mr. Otis W. Booth, February 11, 1870. *c.* Presented by Mr. Thomas Dunlap, July 6, 1870. *d.* Presented by Mr. Stephen McIntosh, September 14, 1870. *e.* Presented by Master James R. Ely, February 27, 1871.

S. carolinensis, var. *niger*, Bach., Black Squirrel. *Hab.* United States. *a.* Presented by Mr. Charles Arent, August 1, 1870. *b.* Presented by Mr. Marshall H. Rose, August 13, 1870.

Genus: *Tamias.*

T. striatus, Linn., Striped Squirrel. *Hab.* Northern United States and Canada. *a.* Presented by Mr. John Daley, September 21, 1870.

Genus: *Cynomys.*

C. ludovicianus (Ord.), Prairie Dog. *Hab.* Western United States. *a*, *b.* Presented by Mr. Henry Keep, November 25, 1868.

Genus: *Arctomys.*

A. monax, Gm., Woodchuck. *Hab.* United States. *a.* Presented by Mr. John W. Manning, May 12, 1870. *b.* Presented by Mr. Frederick Simons, May 28, 1870.

Family: *Castoridæ.*

Genus: *Castor.*

C. canadensis, Kuhl., American Beaver. *Hab.* Northern United States and Canada. *a*, *b*. Purchased 1870.

Family: *Muridæ.*

Genus: *Mus.*

M. rattus, var. *albino*, Linn., White Rat. *Hab.* Europe. *a–d*. Presented by Mr. William J. Schofield, June 1, 1870.

M. musculus, var. *albino*, Linn., White Mice. *Hab.* Europe. *a*, *b*. Presented by Mr. Wm. Goldring, January 7, 1870.

Genus: *Fiber.*

F. zibethicus, Cuv., Muskrat. *Hab.* North America. *a*. Presented by Mr. Donald McMillan, January 3, 1870

Family: *Hystricidæ.*

Genus: *Erethizon.*

E. dorsatus, F. Cuv., Canada Porcupine. *Hab.* Northern United States and Canada. *a*. Presented by Mr. J. W. Velie, November 22, 1869.

Genus: *Dasyprocta.*

D. agouti, Ill., Agouti. *Hab.* South America. *a*. Presented by Mr. Geo. Mills, September 3, 1867.

Genus: *Cælogenys.*

C. paca, Rengg., Spotted Cavy. *Hab.* South America. *a*. Presented by Mr. Robert Gordon, June 18, 1868.

Genus: *Cavia.*

C. cobaia, Pall., Guinea Pig. *Hab.* Brazil. *a*. Presented by Master D. C. Remington, February 11, 1870. *b*. Presented by S W. Francis, M. D., October 5, 1870.

Family: *Leporidæ.*

Genus: *Lepus.*

L. cuniculus, Linn., Common Rabbit. *Hab.* Europe. *a.* Presented by Master William C. Bell, June 14, 1870. *b.* Presented by Mr. Henry Koeger, August 2, 1870. *c.* Presented by Mr. Franklin Ames, October 10, 1870. *d.* Presented by Mr. P. Flannigan, December 7, 1870.

Order: PROBOSCIDEA.

Family: *Elephantidæ.*

Genus: *Elephas.*

E. indicus, Linn., Indian Elephant. *Hab.* South India. *a.* Deposited for exhibition October 31, 1869.

E. africanus, Blum., African Elephant. *Hab.* Africa. *a.* Deposited for exhibition November 15, 1870.

Order: ARTIODACTYLA.

Sub-order: *Ruminantia.*

Family: *Camelidæ.*

Genus: *Auchenia.*

A. huanaco (Mol.), Guanaco. *Hab.* Bolivia. *a.* Presented by H. Schuber, Esq., January 12, 1871.

A. glama (Linn.), Llama. *Hab.* Peru. *a.* Deposited for exhibition March 22, 1870.

Genus: *Camelus.*

C. dromedarius, Linn., Common Camel. *Hab.* Egypt. *a–l.* Deposited for exhibition.

C. bactrianus, Linn., Bactrian Camel. *Hab.* Central Asia. *a.* Deposited for exhibition March 26, 1871.

Family: *Antilocapridæ.*

Genus: *Antilocapra.*

A. americana (Ord.), Pronghorn Antelope. *Hab.* Western

United States. *a, b.* Presented by Mr. W. P. Mellen, November 23, 1870. *c.* Deposited for exhibition November 26, 1870.

Family: *Bovidæ.*

Genus: *Ovis.*

O. aries, Linn., Domestic Sheep. *Hab.* British Islands. 149 specimens Southdown variety. 1 specimen Fat-tailed var. from Syria. Presented by Messrs. Nichols and Hoadley, November 22, 1869.

Genus: *Capra.*

C. hircus, Linn, Domestic Goat. *a.* Presented by Ernest Friedrick, U. S. N., May 19, 1865. *b, c.* Chinese var., presented by Mr. L. Spier, February 26, 1868. *d, e.* Chinese var., born in the menagerie. *f.* Angora var., presented by Mr. William B. Dinsmore, November 1, 1869. *g.* Angora var., presented by Roswell D. Hatch, Esq., January 13, 1870.

Genus: *Oreas.*

O. canna (Pall.), Eland. *Hab.* South Africa. *a.* Deposited for exhibition March 7, 1871.

Genus: *Portax.*

P. picta (Pall.), Nylghau. *Hab.* India. *a.* Deposited for exhibition March 7, 1871.

Genus: *Bos.*

B. grunniens, Linn., Yak. *Hab.* Thibet. *a, b.* Deposited for exhibition March 16, 1871.

B. indicus, Linn., Zebu. *Hab.* India. *a.* Presented by Captain William Brown, R. N. R., April 23, 1869. *b.* Born in the menagerie.

B. taurus, Linn., Domestic Cattle. *a, b.* Kerry var., deposited for exhibition. *c, d.* Flores var., presented by Charles W.

Dabney, Esq., United States Consul, Fayal. *e, f.* Flores var., purchased. *g–k.* Flores var., born in the menagerie. *l.* Durham var., born in the menagerie.

Genus: *Bison.*

B. americanus, Gm., American Bison. *Hab.* Western United States. *a.* Presented by officers Seventh United States cavalry, May 1, 1868. *b.* Presented by Columbus Smith, Esq., January 25, 1871.

Genus: *Bubalus.*

B. caffer, Sperm., Cape Buffalo. *Hab.* South Africa. *a, b.* Presented by Brigadier-General Meigs, U. S. A., April 10, 1865. *c, d.* Born in the menagerie.

Family: *Cervidæ.*

Genus: *Cervus.*

C. canadensis, Erxl., American Elk or Wapiti. *Hab.* Western United States. *a.* Presented by Mr. Charles M. Elleard, December 18, 1864. *b.* Presented by Hon. J. D. Caton, March 19, 1867. *c, d.* Born in the menagerie.

C. virginianus, Bodd., Virginia Deer. *Hab.* United States. *a.* Presented by Mr. Albert Steinway, December 16, 1865. *b.* Presented by Hon. James S. T. Stranahan, May 7, 1866. *c.* Presented by Mr. G. T. D. Lanier, November 30, 1867. *d.* Presented by Mr. William J. Pease, January 9, 1868. *e.* Presented by Mrs. James F. Wenman, March 25, 1868. *f.* Presented by Mr. Turner, July 12, 1869. *g.* Presented by Mr Paul S. Thebaud, September 14, 1869. *h.* Presented by Captain Blake, November 9, 1869. *i.* Presented by Messrs. J. M. Sublett & Co., April 9, 1870. *j, k.* Presented by Hon. August Belmont, May 4, 1870. *l.* Presented by Mr. William Roy, January 31, 1871. *m–q.* Born in the menagerie.

C. mexicanus, H. Smith, Mexican Deer. *Hab.* Mexico. *a.* Presented by General Strum, October 27, 1868.

C. dama, Linn., Fallow Deer. *Hab.* British Islands. *a.* Albino var. Presented by Mr. A. H. Barney, May 14, 1870.

Genus: *Axis.*

A. maculata, Gray., Axis Deer. *Hab.* India. *a.* Presented by Capt. N. Collins, U. S. N., November 25, 1867.

Family: *Tragulidæ.*

Genus: *Tragulus.*

T. pygmaeus, Briss., Musk Deer. *Hab.* Asiatic Islands. *a, b.* Purchased March 9, 1871.

Sub-order: *Non-Ruminantia.*

Family: *Suidæ.*

Genus: *Dicotyles.*

D tajacu (Linn.), Collared Peccary. *Hab.* South America. *a, b.* Born in the menagerie.

D. libiatus, Cuv., White-lipped Peccary. *Hab.* South America *a* Presented by Capt. Geo. B. Slocum, steamer Mississippi, November 27, 1868.

Genus: *Sus.*

S. scrofa, Linn., Domestic Hog. *a.* Chinese var. Presented by Capt. G. Van de Gevre, ship Maria Elizabeth, May 27, 1868. *b.* Japanese var. Presented.

Genus: *Phacochærus.*

P. æliani, Ruppel, Wart Hog. *Hab.* Abyssinia. *a, b.* Deposited for exhibition March 16, 1871.

Order: PERISSODACTYLA.

Family: *Equidæ.*

Genus: *Equus.*

E. zebra, Linn., Common Zebra. *Hab.* South Africa. *a.* Deposited for exhibition March 16, 1871.

Family: *Rhinocerotidæ.*

Genus: *Rhinoceros.*

R. unicornis, Linn., Rhinoceros. *Hab.* India. *a.* Deposited for exhibition March 16, 1871.

Order: MARSUPIALIA.

Family: *Didelphyidæ.*

Genus: *Didelphys.*

D. virginiana, Shaw, Opossum. *Hab.* United States. *a.* Presented by Master Frank Hartshorn, March 22, 1871.

Family: *Macropodidæ.*

Genus: *Macropus.*

M. giganteus, Shaw, Great Kangaroo. *Hab.* New South Wales. *a.* Deposited for exhibition March 16, 1871.

Genus: *Halmaturus.*

H. bennettii, Waterh., Bennett's Wallaby. *Hab.* Tasmania. *a.* Deposited for exhibition March 16, 1871.

Aves.

Order: PASSERES.

Family: *Turdidæ.*

Genus: *Turdus.*

T. musicus, Linn., Song Thrush. *Hab.* British Islands. *a.* Presented April 25, 1869. *b.* Presented by Mr. William Bates.

T. migratorius, Linn., American Robin. *Hab.* North America. *a.* Presented by Mr. John Fagin, November 13, 1867. *b.* Presented by Mr. G. G. Dohrenuem, August 7, 1868. *c.* Presented by Miss McCabe.

T. merula, Linn., Blackbird. *Hab.* British Islands. *a.* Presented by Mr. James H. Roome, January 24, 1869.

Genus: *Harporhynchus.*

H. rufus (Linn.), Brown Thrush. *Hab.* North America. *a.* Presented by Mr. James H. Roome, July 7, 1868.

Genus: *Mimus.*

M. polyglottus (Linn.), Mocking Bird. *Hab.* Southern United States. *a.* Purchased

Genus: *Erithacus.*

E. rubecula (Lath.), English Robin. *Hab.* British Islands. *a, b.* Purchased.

Family: *Saxicolidæ.*

Genus: *Sialia.*

S. sialis (Linn.), Bluebird. *Hab.* North America. *a–d.* Purchased January 17, 1871.

Family: *Fringillidæ.*

Genus: *Serinus.*

S. canaria, Linn., Canary Bird. *Hab.* Canary Islands. *a–d.* Purchased January 17, 1871. *e–h.* Born in the menagerie.

Genus: *Padda*

P. oryzivora (Linn.), Java Sparrow. *Hab.* Java. *a–d.* Purchased January 17, 1871.

Genus: *Cardinalis.*

C. virginianus (Briss.), Cardinal Bird. *Hab.* Southern United States. *a, b.* Purchased January 17, 1871.

Genus: *Passer.*

P. domesticus, Linn., European Sparrow. *Hab.* Europe. *a.* Bred in the menagerie.

Genus: *Fringilla.*

F. chloris, Linn., Greenfinch. *Hab.* British Islands. *a, b.* Purchased January 17, 1871.

Genus: *Cardeulis.*

C. elegans, Steph., Goldfinch. *Hab.* British Islands. *a, b.* Purchased January 17, 1871.

Genus: *Embriza.*

E. melanocephala, Scop., Black-headed Bunting. *Hab.* South Europe. *a, b.* Presented by Mr. J. Jones.

Family: *Icteridæ.*

Sub-family: *Icterinæ.*

Genus: *Dolichonyx.*

D. oryzivorus (Linn.), Bobolink. *Hab.* Eastern North America. *a, b.* Presented by Mr. John H. Doyle, February 16, 1871.

Genus: *Icterus.*

I. vulgaris, Daud., Troupial. *Hab.* South America. *a, b.* Purchased January 17, 1871.

Family: *Corvidæ.*

Sub-family: *Garrulinæ.*

Genus: *Gracula.*

G. musica (Linn.), Mino. *Hab.* India. *a.* Presented.

Sub-family: *Corvinæ.*

Genus: *Corvus.*

C. americanus, Aud., Common Crow. *Hab.* North America. *a.* Presented 1870.

ORDER: ZYGODACTYLI.

Family: *Rhamphastida.*

Genus: *Rhamphastos.*

R. toco (Gm.), Toco Toucan. *Hab.* Brazil and West Indies. *a.* Presented by Philip Figyelmesy, United States Consul, Demerara, April 28, 1869.

R. ariel, Vig., Ariel Toucan. *Hab.* Brazil. *a.* Presented by E. S. De Luce, U. S. N., June 12, 1868.

Family: *Psittacidæ.*

Genus: *Ara.*

A. macao (Linn.), Red and Blue Macaw. *Hab.* Central America. *a.* Deposited for exhibition 1870.

A. chloroptera, Gray., Red and Yellow Macaw. *Hab.* South America. *a.* Presented by Mr. W. De Peyster, August 24, 1870.

Genus: *Conurus.*

C. xantholæmus, Scl., St. Thomas Conure. *Hab.* West Indies. *a.* Presented by Mr. F. F. Georger, July 19, 1870.

Genus: *Chrysotis.*

C. leucocephala (Linn.), White-headed Parrot. *Hab.* Cuba. *a.* Presented by Miss Annabella Nixon, April 27, 1869.

Genus: *Palæornis.*

P. torquata (Linn.), Ring-necked Parrakeet. *Hab.* India. *a.* Purchased March, 1871.

Genus: *Platycercus.*

P. eximius (Shaw), Rose-Hill Parrakeet. *Hab.* New South Wales. *a.* Purchased January 17, 1871

Genus: *Cacatua.*

C. rubro-cristata (Scl.), Rose-crested Cockatoo. *Hab.* South India. *a.* Purchased January 17, 1871.

C. galerita (Lath.), Greater Sulphur-crested Cockatoo. *Hab.* Australia. *a.* Presented by Mr. Dodge, May 25, 1865.

C. sulphurea (Gm.), Lesser Sulphur-crested Cockatoo. *Hab.* Moluccas. *a.* Presented by E. G. Bartlett, M. D., March 2, 1871.

Genus: *Elophus.*

E. roseicapillus, Bonap., Rose Cockatoo. *Hab.* Australia. *a, b.* Purchased January 17, 1871.

Order: ACCIPITRES.

Family: *Strigidæ*

Genus: *Bubo.*

B. virginianus (Gm.), Great Horned Owl. *Hab.* North America. *a, b.* Presented by Mr. J. W. Velie, December 13, 1869. *c.* Presented by Mr. Louis McLieish, December 23, 1869. *d.* Presented January 22, 1870. *e.* Presented by Master Frank Schneider, May 31, 1870. *f.* Presented by Mr. Thomas F. Booth, December 14, 1870. *g.* Presented by Rev. T. J. Mooney, December 17, 1870. *h.* Presented by Mr. Ed. P. Magown, March 13, 1871.

Genus: *Scops.*

S. asio (Linn.), Screech Owl. *Hab.* North America. *a.* Presented by Mr. P. Donohue, November 29, 1870.

Genus: *Syrnium.*

S. nebulosum (Forster), Barred Owl. *Hab.* Eastern North America. *a.* Presented by Mr. Cornelius D. Eckerson, April 25, 1870.

Family: *Falconidæ.*

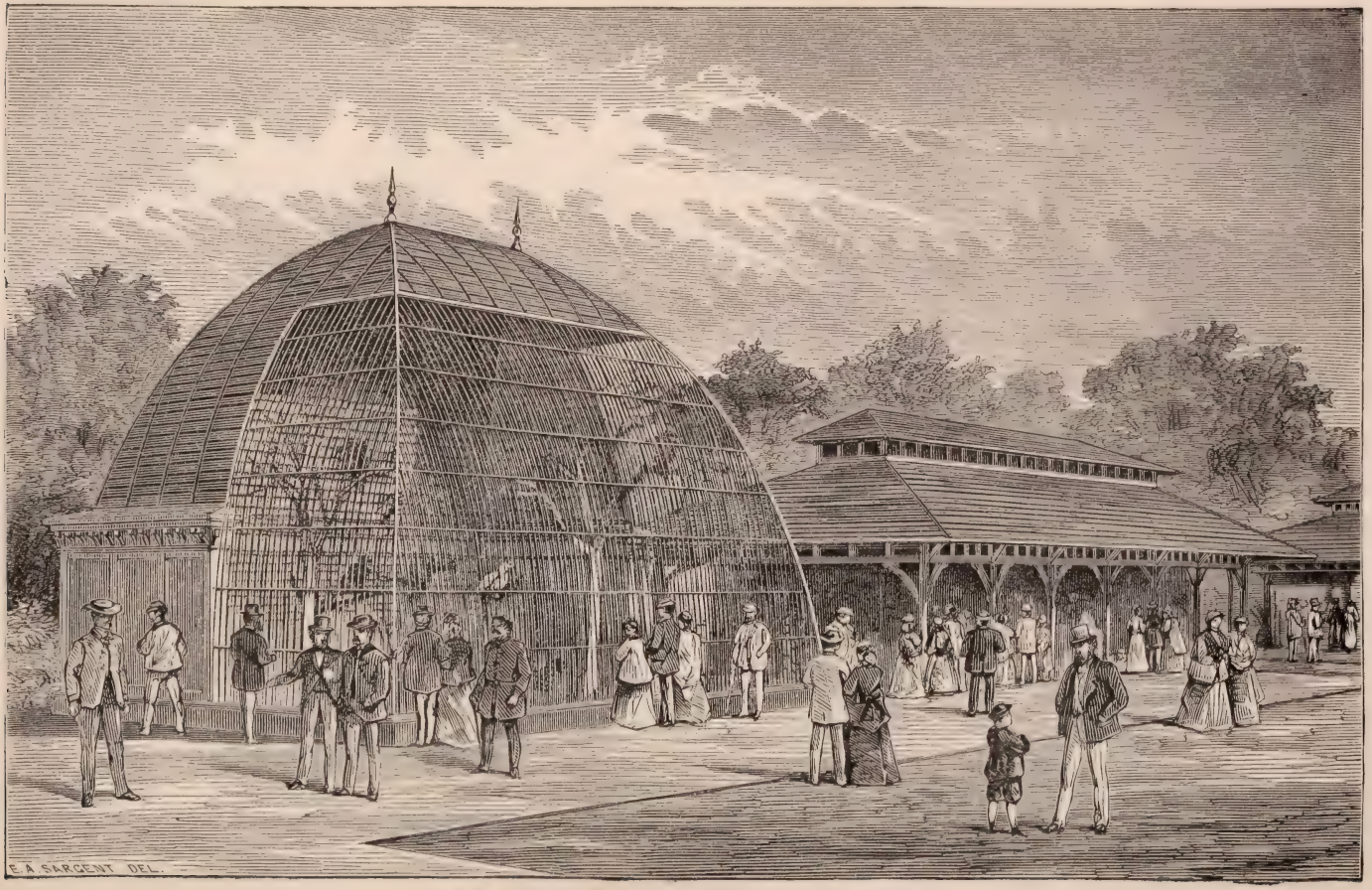
Sub-family: *Aquilinæ.*

Genus: *Aquila.*

A. canadensis (Linn.), Golden Eagle. *Hab.* North America. *a, b.* Presented by Robt. B. Roosevelt, Esq., January 25, 1871.

Genus: *Haliætus.*

H. leucocephalus (Linn.), Bald Eagle. *Hab.* North America. *a.* Presented October 28, 1867. *b.* Presented by Mr. Wm. Bement, April 14, 1868. *c.* Presented by Americus Club, September 12, 1868. *d.* Presented by Mr. G. T. Laird, October 6, 1868. *e.* Presented by Mr. N. Dexter, January 20, 1869.



THE EAGLES' AND VULTURES' AVIARY.

f. Presented by Hon. A. B. Cornell, January 26, 1869. *g.* Presented by Brevet Lieut.-Col. H. S. Gansevoort, U. S. A., April 27, 1869. *h.* Presented by Capt. R. W. Reed, May 24, 1869. *i, j.* Presented by Mr. Wm. Stuart, May 28, 1869. *k, l.* Presented by Hon. Allen Munroe, August 27, 1869. *m.* Presented by Mr. David Wisder, October 22, 1869. *n.* Presented by Hon. Wm. G. Bergen, December 19, 1870.

Genus: *Pandion.*

P. carolinensis, Bonap., Fish Hawk. *Hab.* North America. *a.* Presented 1871.

Sub-family: *Accipitrinæ.*

Genus: *Astur.*

A. atricapillus, Bonap., Goshawk. *Hab.* North America. *a.* Presented by Mr. Warren Drummond, February 9, 1870.

Genus: *Tinnunculus.*

T. alaudarius (Gm.), Kestrel. *Hab.* Britisn Islands. *a.* Presented by Mr. H. T. Meadows, September 13, 1869.

Sub-family: *Buteoninæ.*

Genus: *Buteo.*

B. borealis (Gm.), Red-tailed Hawk. *Hab.* North America. *a.* Presented 1870.

Genus: *Archibuteo.*

A. lagopus (Gm.), Rough-legged Hawk. *Hab.* North America and Europe. *a.* Presented by Mr. William Ward, January 11, 1870.

Sub-family *Milvinæ.*

Genus: *Circus.*

C. hudsonius (Linn.), Marsh Hawk. *Hab.* North America. *a.* Presented by Mr. Charles H. Agens, November 9, 1869.

Family: *Vulturidæ.*

Genus: *Gypætus.*

C. barbatus, Linn. Bearded Vulture. *Hab.* Europe. *a.* Presented by George E. Post, M. D., November 20, 1867.

Order: PULLASTRÆ.

Family: *Columbidæ.*

Genus: *Columba.*

C. livia, var. *domestica* (Linn.), Domestic Pigeon. *a, b.* Presented by Mr. James Costello, November 7, 1870. *c–f.* Presented by Mr. W. J. Kerr, March 14, 1871. *g–r.* 6 varieties. Purchased March 16, 1871.

Genus: *Streptopelia.*

S. risoria (Linn.), Ring Dove. *Hab.* Africa. *a.* Presented by Master Ed. Gerstle, September 21, 1870.

Genus: *Phlogænas.*

P. cruentata (Lath.), Red-breasted Pigeon. *Hab.* Philippine Islands. *a.* Presented by Captain B. F. Marsh, Ship Rattler, September 18, 1869.

Family: *Penelopidæ.*

Genus: *Penelope.*

P. greeyi, Gray, Greeys Guan. *Hab.* New Granada. *a, b.* Presented by Hon. Hamilton Fish, Secretary of State, October 24, 1870.

Genus: *Pipile.*

P. cumanensis (Jacquin), White-crested Guan. *Hab.* Tropical America. *a.* Presented by Hon. Hamilton Fish, Secretary of State, October 24, 1870.

Genus: *Ortalida.*

O bronzina, Gray, Bronzed Guan. *Hab.* South America. *a.*

Presented by Admiral S W. Godon, U S. N., October 15, 1867.

Family : *Cracidæ.*

Genus : *Crax.*

C. alector, Linn., Crested Curassow. *Hab.* Guiana. *a, b.* Presented by Hon. Hamilton Fish, Secretary of State, October 15, 1870.

Genus : *Pauxi.*

P. mitu (Linn.), Razor-billed Curassow. *Hab.* Tropical America. *a.* Presented by Mr. A. Joel, November 30, 1867.

Order : GALLINÆ.

Family : *Meleagrididæ.*

Genus : *Meleagris.*

M. mexicanus, var. *domesticus*, Linn., Domestic Turkey. *a, b.* Albino var., presented by Mrs. Kelly, March 13, 1871.

Family *Perdicidæ.*

Genus : *Ortyx.*

O. virginianus (Linn.), Common Quail. *Hab.* United States. *a–f.* Presented by Captain Horatio Nelson, Steamship Cortes, January 28, 1870.

Genus : *Lophortyx.*

L. californicus (Shaw.), California Quail. *Hab.* California. *a.* Presented 1870

Family · *Numididæ.*

Genus : *Numida.*

N. meleagris (Linn.), Common Guinea Fowl. *Hab.* Africa. 40 specimens bred in the menagerie. *a, b.* Albino var. Presented by Mr. J. P. Hurd, December 19, 1870.

Family: *Pavonidæ.*

Genus: *Pavo.*

P. cristatus, Linn., Pea Fowl. *Hab.* India. 23 specimens, bred in the menagerie.

Family: *Phasianidæ.*

Genus: *Phasianus.*

P. colchicus, Linn., English Pheasant. *Hab.* British Islands. *a, b.* Albino var. Presented by Mr. J. Brice, February 16, 1870.

P. torquatus, Gm., Ring-necked Pheasant. *Hab.* China. *c–c.* Purchased March 6, 1871.

Genus: *Thaumalea.*

T. picta (Linn.), Golden Pheasant. *Hab.* China. *a, b.* Purchased March 6, 1871.

Genus: *Euplocamus.*

E. nycthemerus (Linn.), Silver Pheasant. *Hab.* China. *a.* Presented by Mr. R. L. Maitland, Jr., February 26, 1867.

Genus: *Gallus.*

G. domesticus, Linn., Domestic Fowl. *a.* China var. Presented by Dr. J. P. Macgowan, February 9, 1869. *b.* China var. Presented by Mr. J. Brice, May 17, 1870. *c, d.* Common var., presented. *e.* Hybrid var. Presented by Mr. W. B. Dinsmore, June 1, 1869.

Order: BREVIPENNES.

Family: *Struthionidæ.*

Genus: *Rhea.*

R. americana, Lath., Common Rhea. *Hab.* South America. *a.* Presented by Prof. Joseph Henry, Smithsonian Institute, January 23, 1869.

Genus: *Casuarius.*

C. galeatus (Vieill.), Common Cassowary. *Hab.* Ceram. *a.* Deposited for exhibition March 23, 1871.

Order: GRALLÆ.

Family: *Gruidæ.*

Genus: *Grus.*

G. canadensis (Linn.), Sand-hill Crane. *Hab.* Western United States. *a.* Presented October 15, 1870.

Family: *Eurypygidæ.*

Genus: *Eurypyga.*

E. helias (Pall.), Sun Bird. *Hab.* Trinidad. *a.* Presented 1870.

Family: *Ciconiidæ.*

Genus: *Ciconia.*

C. alba, Linn., White Stork. *Hab.* Africa and Europe. *a.* Purchased.

Family: *Ardeidæ.*

Genus: *Ardea.*

A. cinerea, Linn., English Heron. *Hab.* Europe. *a.* Presented October 27, 1869.

Genus: *Tigrisoma.*

T. braziliense (Linn.), Tiger Bittern. *Hab.* West Indies. *a.* Presented by Hon. Hamilton Fish, Secretary of State, October 28, 1870.

T. cabanisi (Heine), Bittern. *Hab.* Central America. *a.* Presented by Mr. Henry Arthur, October 28, 1865.

Genus: *Botaurus.*

G. lentiginosus, Steph., Common Bittern. *Hab.* North America. *a.* Presented 1871.

Family: *Rallidæ.*

Genus: *Gallinula.*

G. martinica (Linn.), Purple Gallinule. *Hab.* Southern United States. *a.* Presented June 9, 1870.

Order: LAMELLIROSTRES.

Family: *Anatidæ.*

Sub-family: *Cygninæ.*

Genus: *Cygnus.*

C. olor (Gm.), European Swan. *Hab.* Europe. *a, b.* Presented by the Senate of the City of Hamburg, May 24, 1860. *c–e.* Presented by the Worshipful Company of Vintners, London, October 18, 1860. *f, g.* Presented by the Worshipful Company of Dyers, London, October 18, 1860. *h–y.* Bred in the menagerie

C. buccinator, Rich., Trumpeter Swan. *Hab.* North America. *a.* Presented by Mr. Adolph Strauch, September 23, 1865.

C. atratus, Lath., Black Swan. *Hab.* Australia. *a.* Presented by Mr. Charles M. Rice, August 25, 1869.

Sub-family: *Anserinæ.*

Genus: *Anser.*

A. ferus, Linn., Bremen Goose. *Hab.* Germany. *a.* Presented 1869.

A. cygnoides, Linn., Chinese Goose. *Hab.* China. *a–e.* Presented 1869.

Genus: *Bernicla.*

B. canadensis (Linn.), Canada Goose. *Hab.* Northern United States and Canada. *a–c.* Presented by Hon. August Belmont, May 14, 1870. *d, e.* Presented 1870.

Genus: *Chenalopex.*

C. ægyptiaca (Linn.), Egyptian Goose. *Hab.* Africa. *a, b.* Received in exchange 1870.

Sub-family: *Anatinæ.*

Genus: *Aix.*

A. sponsa (Linn.), Summer Duck. *Hab.* North America. *a*, *b*. Presented by Mr. Charles H. Dietz, September 25, 1869.

Genus: *Anas.*

A. boschas, Linn., Mallard Duck. *Hab.* North America. *a*. Presented 1870.

A. boschas, var. *domesticus* (Linn.), White Duck. Eighteen specimens, bred in the menagerie.

Genus: *Cairina.*

C. moschata (Linn.), Muscovy Duck. *Hab.* South America. *a*. Presented by John Frederick, M. D., November 17, 1870.

Order: STEGANOPODES.

Family: *Pelecanidæ.*

Genus: *Pelecanus.*

P. fuscus, Linn., Brown Pelican. *Hab.* Southern United States. *a*. Presented 1870.

Order: LONGIPENNES.

Family: *Laridæ.*

Sub-family: *Larinæ.*

Genus: *Larus.*

L. glaucus, Brunn., Glaucous Gull. *Hab.* Northern United States and Canada. *a*. Presented 1870.

Order: PYGOPODES.

Family: *Colymbidæ.*

Genus: *Colymbus.*

C. torquatus, Brunn., Loon. *Hab.* North America. *a*. Presented by Mr. John M. Kelso, June 10, 1870. *b*. Presented by Col Rhodes, October 21, 1870.

REPTILIA.

Order: TESTUDINATA.

Family: *Emydoidæ.*

Genus: *Emys.*

E. guttata, Schw., Speckled Terrapin. *Hab.* North America. *a–f.* Presented by Richard E. Kunze, M. D., March, 1870.

Genus: *Cistudo.*

C. virginea (Gray), Box Turtle. *Hab.* United States. *a, b.* Presented 1870.

Family: *Chelydroidæ.*

Genus: *Chelydra.*

C. serpentina, Schw., Snapping Turtle. *Hab.* United States. *a.* Presented by S. W. Francis, M. D., October 5, 1870.

Family: *Chelonioidæ.*

Genus: *Eretmochelys.*

E. imbricata, Fritz., Hawk's-billed Turtle. *Hab.* Indies. *a–c.* Presented by Captain E. Bartlett, August 14, 1870.

Order: CROCODILIA.

Family: *Crocodilidæ.*

Genus: *Alligator.*

A mississippiensis (Daud), Alligator. *Hab.* Southern United States. *a, b.* Presented 1869. *c.* Presented by Mr. W. H. S. Wood, April 20, 1870. *d.* Presented by Mr. Henry Macy, June 29, 1870. *e.* Presented by Mr. Sanders, October 6, 1870. *f.* Presented by Mr. Columbus Ryan, March 22, 1870.

Order: SAURIA.

Family: *Iguanidæ.*

Genus: *Phrynosoma.*

P. cornuta, Gray, Horned Toad. *Hab.* Southern United

States. *a.* Presented by Professor M. D. Vanderweyde, March 3, 1870.

Family: *Salamandridæ.*

Genus: *Salamandra.*

S. maculosa, ——, Salamander. *Hab.* Europe. *a–d.* Presented by Captain John H. Mortimer, March 24, 1871.

Order: OPHIDIA.

Family: *Boidæ.*

Genus: *Boa.*

B. constrictor, Linn., Common Boa. *Hab.* Tropical America. *a.* Presented by Philip Figyelmesy, Esq., U. S. Consul, Demerara, October 4, 1870.

Genus: *Chilobothrus.*

C. inornatus, Dum., Yellow Snake. *Hab.* Jamaica. *a.* Presented 1869.

Family: *Colubridæ.*

Genus: *Eutænia.*

E. sirtalis (B. and G.), Garter Snake. *Hab.* United States. *a.* Presented 1871.

Family: *Crotalidæ.*

Genus: *Crotalus.*

C. durissus, Linn., Rattle Snake. *Hab.* United States. *a.* Presented 1871.

List of species exhibited for the first time in the Menagerie during the years 1870 *and* 1871.

Mammalia.

QUADRUMANA.

Moor Monkey.	*Semnopithecus maurus.*	Java.
Vervet Monkey.	*Cercopithecus lalandii.*	South Africa.
Grivet Monkey.	*Cercopithecus griseo-viridis.*	N. E. Africa.
Rhesus Monkey.	*Macacus erythræus.*	India.
Black-faced Spider Monkey.	*Ateles ater.*	Brazil.
Brown Capuchin Monkey.	*Cebus apella.*	Guiana.

CARNIVORA.

Black Leopard.	*Felis leopardus melas.*	Asia.
Domestic Dog. Pug. var.	*Canis familiaris.*	British Is.
Mink.	*Putorius vison.*	Unit'd States

ARTIODACTYLA.

Guanaco.	*Auchenia huanaco.*	Bolivia.
Llama.	*Auchenia glama.*	Peru.
Eland.	*Oreas canna.*	South Africa.
Yak.	*Bos grunniens.*	Thibet.
Fallow Deer.	*Cervus dama.*	British Is.
Wart Hog.	*Phacohærus æliani.*	Africa.

PERISSODACTYLA.

Zebra.	*Equus zebra.*	Africa.
Rhinoceros.	*Rhinoceros unicornis.*	India.

MARSUPIALIA.

Great Kangaroo.	*Macropus giganteus.*	Australia.
Kangaroo.	*Halmaturus bennettii.*	Australia.

Aves.

PASSERES.

English Robin.	*Erithacus rubecula.*	British Is.
Java Sparrow.	*Padda oryzivora.*	Java.
Greenfinch.	*Fringilla chloris.*	British Is.
Black-headed Bunting.	*Emberiza melanocephala.*	S'th Europe.
Bobolink.	*Dolichonyx oryzivorus.*	North Am.
Mino.	*Gracula musica.*	India.
Troupial.	*Icterus vulgaris.*	South Am.

ZYGODACTYLI.

Ring-necked Parrakeet.	*Palæornis torquata.*	India.
Rose-hill Parrakeet.	*Platycercus eximius.*	Australia.
Rose-crested Cockatoo.	*Cacatua rubro-cristata.*	India.
Greater Sulphur Cockatoo.	*Cacatua galerita.*	Australia.
Rose Cockatoo.	*Elophus roseicapillus.*	Australia.

ACCIPITRES.

Barred Owl.	*Syrnium nebulosum.*	North Am.

PULLASTRÆ.

White-crested Guan.	*Pipile cumanensis.*	Tropical Am.

GALLINÆ.

Ring-necked Pheasant.	*Phasianus torquatus.*	China.
Golden Pheasant.	*Thaumalea picta.*	China.

BREVIPENNES.

Cassowary.	*Casuarius galeatus.*	Ceram.

GRALLÆ.

Sand-hill Crane.	*Grus canadensis.*	Western U.S.
Sun Bird.	*Eurypyga helias.*	Trinidad.

Reptilia.

TESTUDINATA.

Hawk's-billed Turtle.	*Eretmochelys imbricata.*	Indies.

SAURIA.

Salamander.	*Salamandra maculosa.*	Europe.

List of species that have been bred in the menagerie during the years 1870–71:

NO. BRED.

4 American Panthers—*F. concolor.*
5 Prairie Wolves—*C. latrans.*
3 Ferrets—*P. furo.*
2 Guinea Pigs—*C. cobaya.*
8 Rabbits—*L. cuniculus.*
2 Red Deer—*C. virginianus.*
4 Domestic Cattle—*B. taurus.*
142 Southdown Sheep—*O. aries.*
3 Chinese Goats—*C. hircus.*
1 Zebu—*B. indicus.*
1 Camel—*C. dromedarius.*
1 Ring Dove—*S. risoria.*
10 Pea fowls—*P. cristatus.*
22 Guinea fowls—*N. meleagris.*
17 White Ducks—*A. domesticus.*
7 Swans—*C. olor.*

Rockwood Phot.

Grotto Bridge.

REPORT

OF THE

ENGINEER-IN-CHIEF,

REPORT OF THE ENGINEER-IN-CHIEF.

DEPARTMENT OF PUBLIC PARKS,
BUREAU OF CONSTRUCTION AND REPAIRS,
April 20, 1871.

HON. PETER B. SWEENY,

President of the Board of Commissioners of the Department of Public Parks:

SIR:—I have the honor to submit herewith the First Annual Report of the operations and progress of the work under my direction in this department, connected with the construction and repairs of the Central and City Parks, and the regulating, grading, and superstructure of "The Boulevard" and avenues now in progress.

Illustrations also are added to give a clearer understanding of plans and details. The quantities stated of work done upon each of the several works are for the year ending April 20, 1871, with the exception of the work done in the grading of "The Boulevard" and the Sixth avenue, upon which the quantities given are calculated from January 1, 1870, the limited force of engineers at my disposal on April 20, 1870, being inadequate to make the necessary measurements and computations upon that portion of the work at that date.

The principal divisions of the work under the supervision of the Bureau of Construction and Repairs are as follows:

I. Improvement of the Central Park.

II. Improvement of the City Parks.

III. Improvement of "The Boulevard," and other avenues and streets.

I.—IMPROVEMENT OF THE CENTRAL PARK.

ROADS AND WALKS.

No new roads or drives have been constructed during the year.

Great danger and inconvenience have existed for several years from the narrowness of the main east and west drives, between Seventy-eighth and One Hundred and Fourth streets, and in accordance with the instructions of the Board of Commissioners, the necessary surveys were made and a plan and a report presented for widening the east drive from "The Turn-out," near Seventy-eighth street, to its juncture with the surface drive at One Hundred and Fourth street, to an uniform width of forty-five feet.

The plan having been approved, the work was commenced, is now in progress, and will be completed at an early day during the present season.

In connection with this work, a necessary change of the twelve-foot ride along the west side of the drive, from Ninety-seventh to One Hundred and Fourth street, must be made.

Its present location, adjoining and parallel to the drive, is very objectionable on account of the liability of carriage horses becoming frightened and restive by the sudden and rapid passage of equestrians.

It is also objectionable on account of the dust arising from its use, and its present width, twelve feet, is inadequate.

In order to obviate these difficulties, it is proposed to change the location of the ride, and widen it, making it independent of the drive.

Plans of this proposed change have been presented.

In compliance with the instructions of the Board of Commissioners, surveys and plans are being made for the extension of the drive to the entrance of the Park on Fifty-ninth street, at Sixth and Seventh avenues; also for a drive connecting the east and west drives north of the New Reservoir, and for the extension of the ride or bridle path on the easterly side of the Park, so as to form a continuous ride for equestrians without the necessity, as at present, of returning by the same route.

Plans and reports, with estimates of cost, will be submitted at an early day.

For the accommodation of the large number of persons coming from west of Fifth avenue, including those that reach the Park by the Sixth, Seventh, and Eighth avenue cars, the majority of whom desire to visit the Museum and temporary location of the Zoological collection, a new walk has been designed and constructed, giving a short and direct route from the walk along the east drive, near Sixty-second street, to the Museum building.

This overcomes the great inconvenience heretofore experienced by a majority of visitors who naturally passed along the walk on the west side of the Fifth avenue entrance and east drive, and were then compelled to return and cross the entrance near Sixtieth street, the width of which is about one hundred and fifty feet, thus exposing themselves to great danger from the vehicles constantly passing.

The superstructure of the walk is of stone, surfaced with concrete pavement.

Around the Museum building, and in connection with the surrounding buildings erected for the temporary accommodation of living animals, 21,200 square feet of walks are in progress of construction.

The superstructure is of stone, to be surfaced with the Scharf patent pavement, and with a two-inch blue-stone curb along the sides.

Nine hundred and ten lineal feet of drain pipe have been laid, and twelve silt basins built, in connection with the walks and buildings. During 1868 and 1869 the former Commissioners of Central Park caused a portion of the walks to be surfaced with the Fisk pavement of pine tar, and although at first it made an agreeable walk its durability is so short as not to warrant its further use. During the past year a portion of the walks south of Seventy-ninth street (more especially those with steep declivities), and the Fifth avenue sidewalk, from Sixtieth street to Seventy-ninth street, have been surfaced with the improved Fisk asphalt pavement, the durability of which remains to be tested. The lower Esplanade at the Terrace was surfaced with the Scharf patent pavement, a sample of which was laid in the summer of 1869.

A small strip at the foot of the Terrace steps has been surfaced with the Portland stone. Surveys and plans are being prepared, in accordance with a resolution of the Board of Commissioners, for the following walks, viz.:

A walk from the entrance on the Sixth avenue, more or less direct, through the East Meadow to the Children's Playground and the Mall; also three separate walks running more or less direct through the Ramble, one from the easterly side of the Lake, another from the end of the Iron Bridge, and the third from the end of the Rustic Bridge, each extending to the Belvedere, and to be about fifteen feet in width.

The plans, reports, and estimates of cost will be completed and submitted as soon as possible.

BRIDGES.

During the past year the floors of three iron bridges, Nos. 15, 19, and 27, having become unsound, have been removed and new plank put down.

Nos. 15 and 27 have been relaid with yellow pine, and No. 19 with white pine treated with the Robbins process for preserving wood.

Parapet walls for the support of an iron railing for the bridge east of the Old Reservoir (No. 23) are being constructed so as to permit the widening of the East Drive.

The rustic timber bridge known as Bridge No. 26, located on the West Drive, over the Ravine, near One Hundred and Second street, is rapidly going to decay.

The railing and outer timbers need to be replaced at once, and the whole bridge, in a year or two, will become unsafe.

It is proposed, instead of renewing the wood superstructure, to substitute an arch of stone, in character the same as the present abutments, with a rustic iron railing, plans of which are now being prepared.

A rustic iron railing is being constructed for Bridge No. 25, so that a view from the Drive and Ride can be had of the cascades at the ends of the bridge, which have heretofore been hidden from view by the grounds and shrubbery placed on the ends of the bridge as a protection.

BUILDINGS AND STRUCTURES.

The work upon the Belvedere, which was commenced in 1867, has been vigorously prosecuted during the past season and the main tower is now within twenty-five feet of its elevation.

The parapet wall is nearly completed, and a large quantity of cut stone is prepared and in readiness to be placed in the work, and its completion can safely be promised during the present season.

The stone structure south of the Marble Bridge, and originally designed as the "Dairy," is finished, except the interior fixtures.

The excavation for a building on the Eighth avenue, near Sixty-third street, designed by the former Commissioners of the Central Park as a Palæozoic Museum, was made previous to April 20th, 1870, and the foundation masonry, together with masonry and blue-stone coping for the platform, was in progress at that date.

The foundation masonry was completed to the proper height, and work was suspended thereon.

The stables and sheds for storage, located on Transverse Road No. 3, and between the two Reservoirs, are now nearly completed.

The plans were adopted, the foundation commenced, and contracts awarded for the construction thereof by the former Commissioners of the Central Park. The stables and sheds were occupied about the 1st of February last.

The house for the keeper and the paving of the yard and sheds alone remain to be done, and are now in progress and well advanced.

The shops for repairs to machinery, tools, etc., are to be placed fronting on Transverse Road No. 3, between the Road and the Old Reservoir, and west of the house of the keeper of the Croton Reservoirs.

The plans have been recently adopted, and preparations for the immediate commencement of the work are being made, and it is expected that they will be completed and in readiness for occupation during the present season.

The construction of the Terrace wall and foundation for steps in front of the Conservatory, located at Seventy-fourth street and Fifth avenue, were in progress previous to the organization of the present commission.

The granite steps and coping have been delivered and in part set.

Four hundred cubic yards of masonry have been placed in the work.

The plan of the Conservatory building having been very materially changed, and the size of the building enlarged, the

work of excavation and foundation masonry was commenced in September last, since which time the amount of work done has been as follows, viz.:

Five thousand cubic yards earth excavation.

One thousand cubic yards rock excavation.

One thousand five hundred and forty cubic yards masonry in foundation.

It was expected, from the formation of the grounds and the outcropping of the rock on both sides of the site, that a rock foundation for the whole building would be secured within a reasonable depth, but the rapid falling off of the rock near the centre of the building has necessitated the substitution of a foundation of piles and timber.

The material found overlaying the rock upon nearly the whole area is a quicksand, the excavation of which, with the constant removal of water, sheet-piling, bracing the high embankment of the Fifth avenue, and rehandling of the materials, has enhanced the cost of the work beyond what was reasonably expected

LARGE FOUNTAIN AND BASIN ON THE ESPLANADE NORTH OF THE TERRACE.

The fountain still remains incomplete. The large octagonal granite basin, a contract for which was made by the former Commissioners of the Central Park in June, 1869, and the bronze figures for the fountain, which are being cast in Europe, have not yet been received. The work done in connection therewith, during the past year, was the taking up and resetting of the coping and the upper portion of the rim of the basin which

was built in 1864 (the contraction of the stone having been such as to start the joints and cause the escape of water), the concreting of the irregular and rough bottom of the basin, and the lining of the bottom and rim of the basin with Portland stone.

The latter work was done by "The Portland Stone Company," who claim and guarantee that their monolithic lining of the Portland stone will prevent all leakage, and will withstand the extreme changes of the climate.

The foundation for the support of the octagonal basin and pedestal for the bronze figures of the fountain, which was constructed in 1867, has been taken down and relaid, and the blue-stone sub-base, base, and enriched stones below the basin, have been put in place.

The Scotch granite columns, with all the bronze bases, caps, and enrichments, and the blue-stone pedestal, have been furnished, and are in readiness to be put in place as soon as the octagonal granite basin is delivered and set in place.

Four hundred and twenty-five cubic yards of concrete were used in the bottom of the basin, and six thousand six hundred and twenty-seven square feet of Portland stone lining on the bottom and rim.

Work upon the sheepfold, located near Sixty-seventh street, and between the West Drive and the Eighth avenue, was commenced in September last.

It is now nearly enclosed, and, with ample means of access from the Drive, Ride, and Walks, will be completed during the present season.

The structure on the exterior is of a Colabaugh brick, with Island gneiss and North river blue and gray stone trimmings, and consists of a barn ninety-three by twenty-four feet on the west, with two buildings for the sheep, one hundred and two by twenty-four feet, extending eastward and terminating with "loggias" twenty-seven by sixteen feet at the ends for the accommodation of visitors.

The following quantities of materials have been used in the construction, viz.:

Four hundred and forty-four cubic yards of masonry in foundation.

Three thousand five hundred and twenty-two square feet of Island gneiss, North river blue and gray stone trimmings.

Three hundred thousand bricks laid.

Fifty-five thousand two hundred and seventy-five feet, board measure, timber and planks.

ENCLOSING WALLS.

During the past year the upper portion of the vertical wall on the Fifth avenue, between Seventy-ninth and Eighty-fifth streets, a distance of thirteen hundred and seventy-five feet, has been built of Ohio stone.

The battered wall on the Fifth avenue, between Eighty-ninth and Ninety-first streets, for a distance of four hundred and ten feet, has been taken down, the foundation raised, and the wall rebuilt so as to adapt it to the change of grade of the Fifth avenue at Ninetieth street.

The granite coping for the battered wall, from Eighty-fifth to Ninety-seventh street, on the Fifth avenue, a distance of two thousand nine hundred and sixty-seven feet, has been contracted for, and it is expected that its delivery and setting on the wall will be completed in May next.

This wall, below the coping, was commenced in 1863, and completed in 1865, and should, for the preservation of the masonry, have been coped at the time of its completion, which could have been done for $2.50 per lineal foot less than at present prices.

THE TRANSVERSE ROADS.

These roads, four in number, cross the Park from east to west, and are in length about one-half mile each.

They were designed for city traffic, and are for the greater part sunken below the surface of the Park, the side walls being not less than seven feet above the grade line of the roads, and a greater height where the depth of the cuts or the bridge-approaches require it. The width between the side walls is forty feet, and designed to include a roadway of twenty-eight feet, and sidewalks of six feet each.

Road No. 1 crosses the Park from Sixty-fifth street at the Fifth avenue to Sixty-sixth street at the Eighth avenue.

Road No. 2, at present, crosses the Park in nearly a direct line at Seventy-ninth street, but the change of the grade of the Eighth avenue will probably cause a change of the western or Eighth avenue entrance, and remove it to Eightieth street.

Road No. 3 crosses the Park from Eighty-fifth street at the Fifth avenue to Eighty-sixth street at the Eighth avenue.

Road No. 4 crosses in nearly a direct line at Ninety-seventh street.

Upon all of these roads the drainage had been perfected, and temporary gutters of rubble-stone laid, and a rubble-stone superstructure built, and the gas pipes laid in Roads Nos. 1 and 2.

During the past year the gas pipes have been laid in Road No. 3; contracts have been made for the brackets and lamps, and they have in part been put up; and the surveys, plans, and estimates have been made for the superstructure of the roads.

INTERIOR SLOPES ON THE EIGHTH AVENUE.

Agreeably to the resolution adopted by the Executive Committee, on September 16th, 1870, surveys and plans were made for adapting to the new grade of the Eighth avenue the interior slopes, entrances, and walls on that side of the Central Park, and a report thereon was submitted on September 27th, 1870.

It will be seen by this report that the expense of adapting the work to the new grade of the Eighth avenue, as well as to the necessary change on One Hundred and Tenth street (the northerly boundary of the Park), will be very great.

The original design at many points is entirely changed, and at some points it is believed the change will be very detrimental to the appearance of the Park grounds, especially in the vicinity of One Hundred and Tenth street, where the high, bold, and rocky bluffs, which at present form a natural terminus of the Park, will in appearance become depressed,

and lose much of their landscape effect by the great elevation of the grades of the avenue and street above the adjoining interior grounds.

The one-faced wall from Sixtieth street to Sixty-sixth street was taken down and rebuilt, and the interior slopes reshaped in 1868.

Work was commenced upon the slopes between Sixty-sixth and Seventy-ninth streets on the 5th of January last, and is now in progress.

The following quantities of work have been done, viz.:

One thousand cubic yards earth excavation.

Five thousand and fifty cubic yards rock excavation.

Eight hundred and fifty lineal feet one-faced wall removed.

One thousand six hundred and twenty cubic yards foundation wall built.

GRADING THE EIGHTH AVENUE.

Work upon the regulating and grading of the avenue between Seventy-seventh and Eighty-first streets, which is under the direction of the Department, has been in progress since November last, the material for filling being furnished chiefly from the excavation for the slopes at Sixty-eighth street and the Conservatory foundation.

Ten thousand five hundred cubic yards of filling have been placed in the embankment.

INTERIOR SLOPES ON THE FIFTH AVENUE.

The change of the grade of the Fifth avenue caused about five hundred and twenty lineal feet of one-faced wall between Sixty-ninth and Seventy-first streets to be taken down and rebuilt, and the excavating and reshaping of the interior slopes, which work was done in 1868.

At Seventy-fourth street the grade was raised three feet, causing about five hundred lineal feet of the wall to be raised and the slopes reshaped, which work was done in 1869.

At Ninetieth street the grade was raised three and a half feet, and during the past season four hundred and ten lineal feet of battered wall have been taken down and rebuilt, and the slopes and entrance drive are now being changed to suit the new grade.

From Ninety-seventh street to One Hundred and Seventh street, the one-faced wall, for a distance of about twenty-seven hundred feet, requires to be taken down, a rough foundation carried up, and the wall rebuilt. The slopes must be very materially changed, and the grade of the One Hundred and Second street drive altered.

From One Hundred and Seventh street to One Hundred and Tenth street, a distance of seven hundred and twenty-five feet, the present wall can be raised, and but a slight change in the slopes is necessary.

I see no difficulty in adapting the interior slopes and drive to the change; and it is believed that the benefit to the avenue and adjacent property will greatly exceed the expense of adapting the Park grounds to the change.

SEWERS.

An eighteen-inch vitrified pipe sewer for a conduit of the water, filth, &c., from the Museum and buildings surrounding, which buildings will probably be used for the accommodation of the Zoological collection for some time to come, is in course of construction.

The sewer commences at a point north of the Museum, near Bridge No. 7, and passes through the lawn west of the buildings and by a tunnel under the main East Drive, through which a brick sewer, egg-shaped, and of a sufficient size to permit a person to pass through, in case of stoppage, is substituted; thence along the easterly shore of the Pond, and enters the outlet sewer of the Pond below the waste weir, which discharges into the city sewer in Fifty-ninth street.

At present, as heretofore, all the filth from the above-mentioned buildings has been conducted into the Park sewer and thence into the Pond, and could not but cause the water of the Pond to become offensive and disagreeable to visitors, and objectionable to the neighborhood.

In connection therewith, I deem it proper for me to state that the various drainage systems were originally designed and constructed for the conveyance (where practicable) of the water from the superficial and sub-drainage into and for the supply of the various ponds and lakes within the Park, and it was never contemplated to connect the sewerage from buildings or structures, from which impurities might flow, with these drainage systems.

Several such connections having been made prior to April 20th, 1870, I would recommend that they be disconnected, and

special drain pipes or sewers be constructed for the purpose, connecting with the city sewers, or sewers within the Park which do not afford supply for the lakes; or where such connection is impracticable, that cesspools be built for that purpose.

The impure and offensive water coming from the district north and west of the Park, and entering the Harlem lake, near the Sixth avenue and One Hundred and Tenth street entrance, should at once be diverted by a city sewer through One Hundred and Tenth street.

SUPPLY OF WATER FOR THE PARK.

Measures should be taken at an early day to procure a more abundant and certain supply of water for irrigation and ornament, as well as to keep up the necessary circulation and change of water in the several ponds and lakes, thereby rendering them free from impurities.

The present supply for the ponds and lakes is derived from the drainage of the Park grounds, the drainage areas exterior to the Park west of the Eighth avenue, and from such waste or surplus water as is discharged from the two Croton Reservoirs.

The present supply from the drainage outside the Park west of the Eighth avenue, the water from which is very impure, will be cut off when the proper sewerage of that vicinity is constructed.

The waste and surplus from the Croton Reservoirs are irregular, and therefore cannot be relied upon.

The drainage from the Park grounds which discharges into "The Pond" has so far proved ample for its supply.

That discharging into "The Lake," with one or two exceptions, has also proved ample.

The supply from all sources, including the drainage of about one hundred and fifteen acres outside the Park, discharging into the Pool, Loch, and Harlem Lake, has never been adequate either to preserve the necessary purity of the water, or give the best effect to the cascades.

For the purpose of utilizing the present supply, as well as any additional supply that from any source can be procured, I would recommend as the most practicable method the use of an engine at the outlet of "The Lake," to elevate the water to the upper end of the Lake; and at the waste weir at the outlet of the Harlem Lake, the use of a wheel and pump, worked by the discharged water, to re-elevate a portion of the water to the upper end of the Pool, a chamber adapted to admit of an overshot wheel having been constructed in connection with the waste weir, and which will be effective for the purpose in proportion to the amount of the waste water.

The expense will be the cost of a wheel and pump with the necessary fixtures and conducting pipes.

THE GROUNDS WEST OF THE EIGHTH AVENUE, BETWEEN SEVENTY-SEVENTH AND EIGHTY-FIRST STREETS.

These grounds had been determined upon by the former Commissioners of the Central Park, as the site for the Zoological Gardens, and the work of preparing the foundation for, and construction of, the enclosing walls, was commenced in

1868, and was in progress, though but little had been done upon it, at the time of the organization of the present Department.

At an early day thereafter the work was suspended.

Very recently the regulating and grading of the grounds have been commenced preparatory to the construction of the buildings for the Museum of Natural History and a Gallery of Art.

ZOOLOGICAL GARDENS.

The site selected for these gardens by the former Commissioners of the Central Park was deemed by the Department of Public Parks inadequate in area, and unsuited in other respects for the present success and future development of the gardens, and on the 4th of October last they selected and designated for the site the Meadows in the Central Park, located north of the Transverse Road crossing the Park at Ninety-seventh street, and bounded on the east, north, and west by the Ride and Drives, and containing an area of nearly forty-eight acres.

During the past year a topographical survey and map were made of the grounds.

By direction of the Vice-President, a report upon the original and designated sites was made and submitted in February last, a copy of which is herewith appended.

THE GROUNDS EAST OF THE OLD RESERVOIR.

A topographical survey and map have been made of the grounds located east of the old Croton Reservoir, between the East Drive and the Fifth avenue, and Transverse Roads Nos. 2 and 3, and containing twenty-four and one-half acres.

Upon these grounds it is proposed to erect a "Casino," or refreshment building, seventy-five feet by one hundred and fifty feet, with a circuit drive and carriage concourse of about one thousand eight hundred feet in length.

In connection herewith, an entrance for pedestrians should be constructed at Eighty-fifth street and Fifth avenue, on the south side, and adjoining the Transverse Road, with a walk leading toward the South Gate House of the new Croton Reservoir, another walk toward the Ramble, passing under Bridge No. 23, near Eightieth street, and also one toward the proposed Casino.

An entrance at or near Eighty-sixth street, on the Fifth avenue, has long been needed and asked for, from the former Commissioners of the Central Park, as well as from the Legislature, for several years, by a large number of inhabitants who approach the Park through Eighty-sixth street (which is one hundred feet in width), and who very naturally desire to enter the Park at or near that point.

It is believed that an entrance at Eighty-fifth street would afford much greater convenience and satisfaction to the great majority of visitors than if placed at Eighty-sixth street, which would require the construction of a long and expensive bridge under the East Drive, a long flight of steps, and will be attended with great danger on account of crossing the Ride at grade, and will not afford visitors desiring to pass south toward the Ramble and Lake equal facilities with those desiring to reach the Gate House, or to pass northward.

The original design contemplated a walk entrance at Eighty-fifth street.

If thought desirable, now or at any future time, a carriage entrance can be easily constructed in connection with the proposed circuit drive.

WORKS OUTSIDE THE PARK AND CONNECTED THEREWITH.

THE CIRCLE AT BROADWAY, FIFTY-NINTH STREET, AND EIGHTH AVENUE.

At the time of the organization of the Department, no part of the superstructure of the roadway was complete.

The Telford foundation was mostly laid, and a small area on the easterly side had been temporarily surfaced for the accommodation of travel.

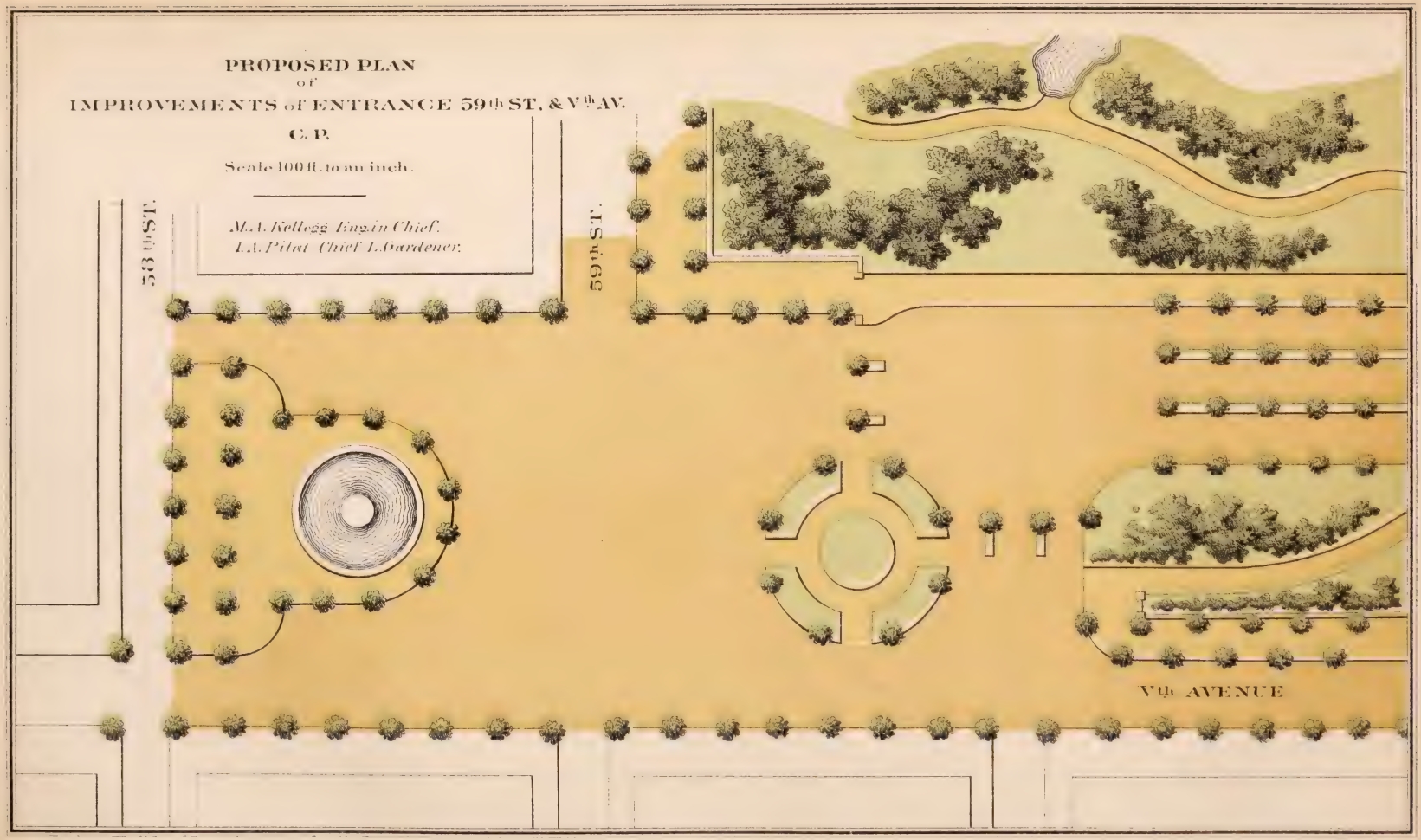
Since that time the tracks of the Eighth Avenue Railroad have been removed and relaid in the desired position, the superstructure of the entire roadway completed, the graveling of the sidewalks finished, the heavy curb around the eighty-foot circle at the centre closed, the surface temporarily finished, the gas pipes laid, and lamps are being set.

The amount of work done during the past year is as follows:

Ten thousand two hundred and fifty-four square yards of roadway surfaced and rolled.

One thousand eight hundred and eighty-four cubic yards of Macadam stone furnished and put in place.

Eight hundred and six lineal feet of railroad track taken up and relaid.



C. L. Spanzenberg del.

PUBLIC SQUARE AT FIFTY-NINTH STREET AND FIFTH AVENUE.

Agreeably to the resolution adopted by the Executive Committee of the Department of Public Parks on September 5th, 1870, a plan for the improvement of the Square was prepared and submitted, which was approved, and work thereon commenced immediately.

The improvement consists of a large fountain basin of seventy feet interior diameter, the facings of which are to be of North river blue and gray stone, with bronze enrichments, the basin to be surrounded with a broad walk or plaza, the curb of which is complete. The design of the fountain, together with the pavement to be used in the roadway of the large area in front of and surrounding the fountain basin and plaza, has not been determined.

The amount of work done is as follows:

One thousand cubic yards earth excavation for fountain basin.

Three hundred and fifty cubic yards foundation masonry for fountain basin.

Six hundred and fifteen lineal feet curb furnished and laid.

In connection herewith, one thousand and twenty square yards of trap-rock pavement on the Fifth avenue, opposite the Square, which was in very bad condition, has been taken up and relaid.

FIFTY-NINTH STREET, BETWEEN THE FIFTH AVENUE AND "THE CIRCLE."

Agreeably to an Act of the Legislature passed April 26, 1870, directing the Department of Public Parks to perfect the Boulevard on the southerly side of the Central Park in Fifty-ninth street, such portion of the street as was unpaved has been paved with trap-rock pavement, and that portion of the original trap-rock pavement that had settled in an unusual manner has been taken up and relaid.

The quantity paved and repaved is four thousand one hundred and fifty square yards.

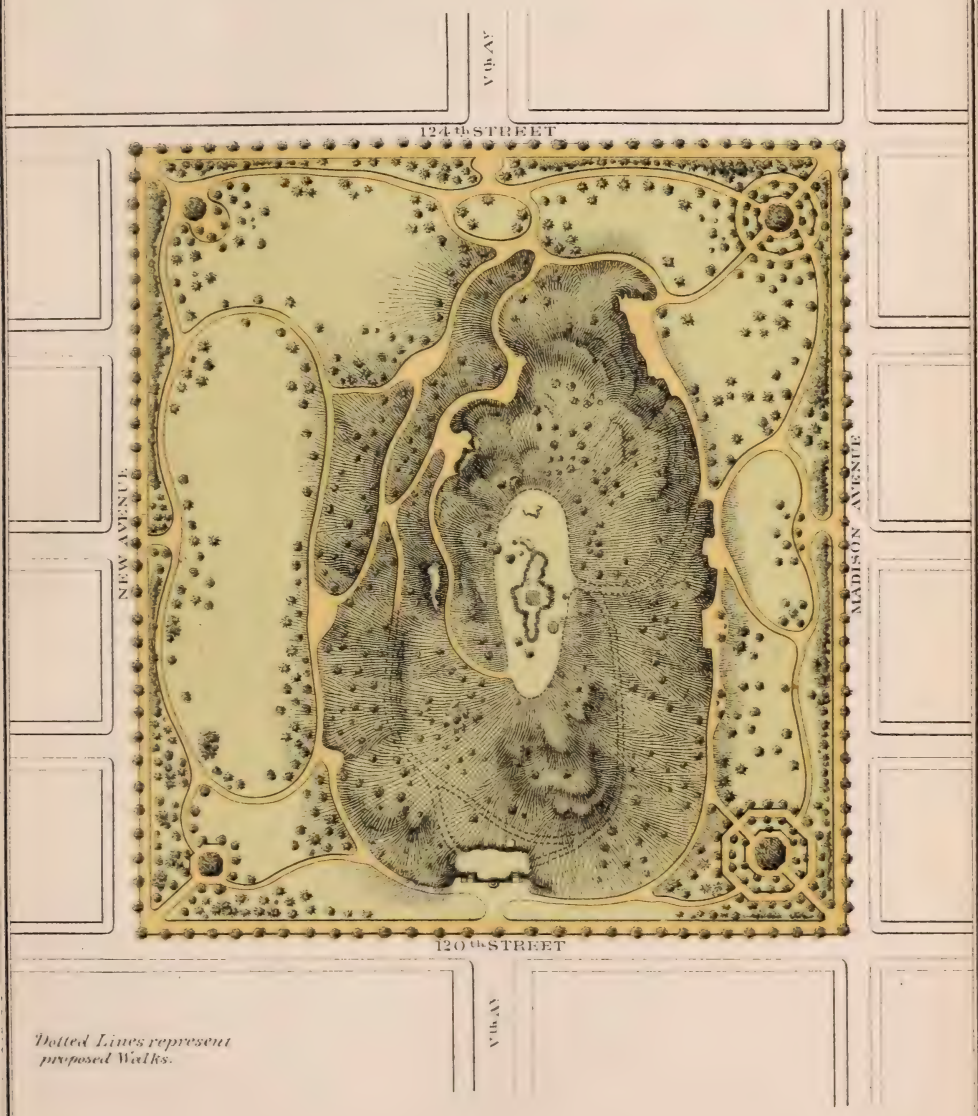
II. IMPROVEMENT OF CITY PARKS.

MOUNT MORRIS SQUARE.

This Park is located between One Hundred and Twentieth and One Hundred and Twenty-fourth streets, and occupies the Fifth avenue, together with three hundred and ninety-five feet on each side thereof, and contains an area of $20\frac{173}{1000}$ acres. It is formed by a mass of rocks rising to a height of one hundred and one feet above mean high water, and about eighty feet above the surrounding plain, a portion of which is within the limits of the square. The work of improvement was commenced by the former Commissioners of the Central Park in 1867, and continued until May, 1868.

PLAN
of
IMPROVEMENTS of MOUNT-MORRIS PARK.

M. A. Kellogg Eng.in Chief L. A. Pilat Chief L. Gardener



Dotted Lines represent proposed Walks.

Scale 250 ft. to an inch

C. L. Spangenberg del.

The expenditure of the appropriation for the year 1868 was by an Act of the Legislature placed under the direction of the Street Commissioner. The Legislature of 1868–9 placed the expendituer for its improvement under the direction of the Commissioners of the Central Park, and work was renewed in 1869, since which time it has been in progress.

Since work was resumed, and until July last, the devising of the plans and the supervision of the laying out were under the direction of the Chief Landscape Gardener, the late Ignatz A. Pilat, Esq., since whose death the work has been prosecuted under the direction of this Bureau. The work done since it was placed under the direction of the Commissioners of the Central Park, in 1869, to the present date, has been the construction of a temporary wooden fence around the Park, the regulating, grading, draining, and fertilizing of about fourteen acres, the substructure of eight thousand lineal feet of walks, and the excavation of about eleven hundred cubic yards of rock for the entrance at Fifth avenue and One Hundred and Twentieth street.

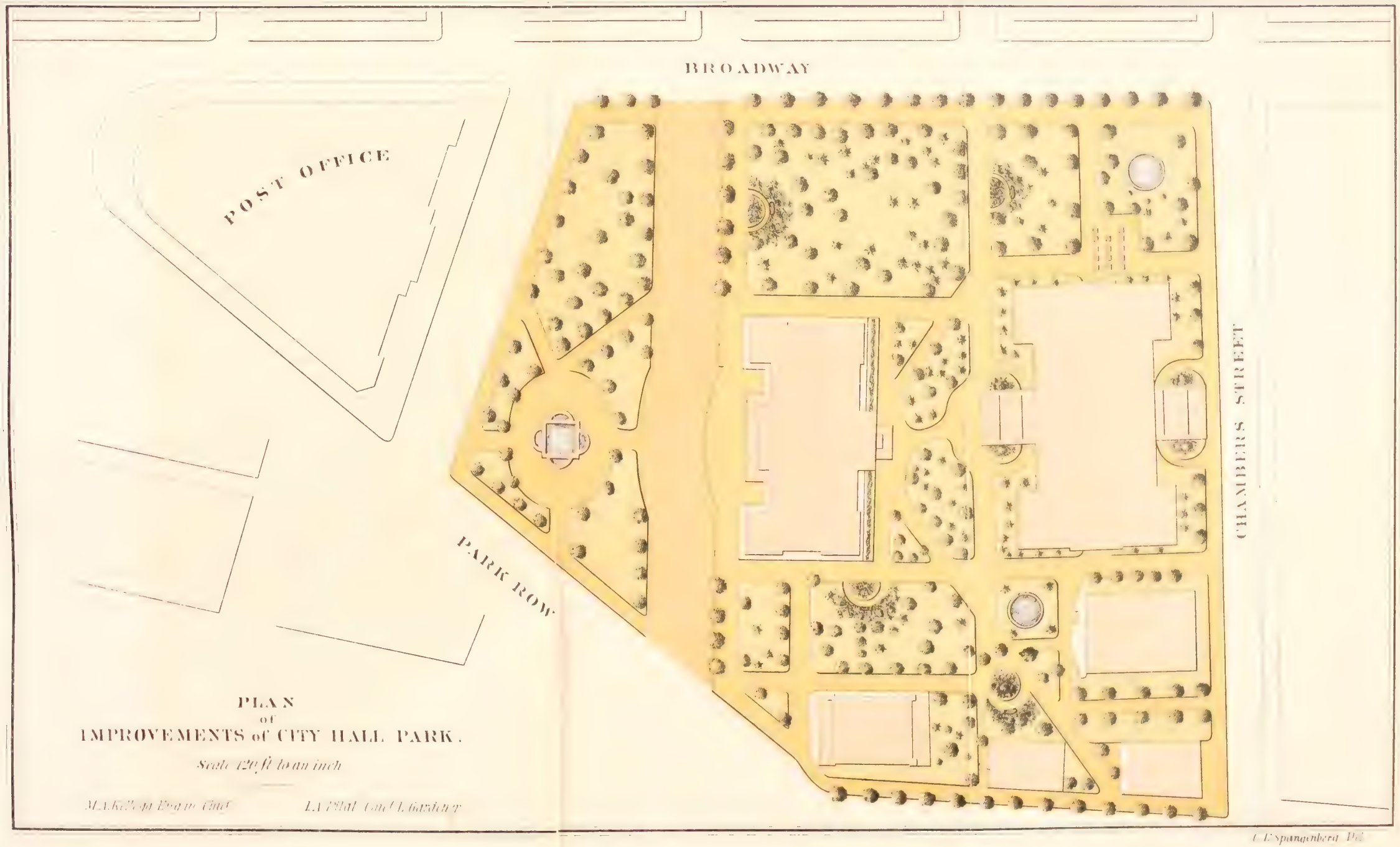
The principal work remaining to be done is the construction of the walks in progress and those designed (the length of which is about fifteen hundred lineal feet), the superstructure of the walks in progress and designed, the grading, shaping, fertilizing, and draining of about six acres, the grading and superstructure of the concourse on the highest elevation of the ground, the erection of the music-stand and summer-houses to be located thereon, the laying of a water-pipe system for drinking hydrants, irrigation, etc., and the erection of a permanent enclosure, with the necessary entrances.

It is expected that these improvements can be brought to completion during the present season, except the permanent enclosure and entrances, which cannot well be constructed until the surrounding avenues and streets are regulated.

CITY HALL PARK.

The area of this park, exclusive of the width added to Broadway and Park row, and the new street opened crossing the park, adjoining the grounds purchased by the United States Government for the new Post Office building, is $8\frac{234}{1000}$ acres, of which $2\frac{19}{100}$ acres are occupied by buildings. The plan for its improvement was submitted to and adopted by the Executive Committee on the 11th day of May last, and the work was commenced on the 18th day of the same month.

Previous to the commencement of the improvement the area surrounding and adjacent to the new Court House, together with the rectangle formed by the new Court House, Broadway, and Chambers street, was encumbered with large quantities of building materials, temporary buildings, machinery, and tools, together with spalls, rubbish, etc., which had accumulated during the erection of the Court House. The ground inside the iron railing along Broadway was occupied and used as a hack stand, and the remainder of the ground was a common, the walks being mainly of earth, with a portion partially flagged. The iron railing and brown stone base course which originally enclosed the Park have been removed, and the base stone redressed, a part of which was used for enclosing the triangular Park at the foot of Canal street, and the remainder is in readiness for use at the triangular park



PLAN
of
IMPROVEMENTS of CITY HALL PARK.

Scale 120 ft to an inch

M. A. Kellogg Engin. Chief L. A. Pittat Conc. L. Gardener

C. E. Spangenberg Del.

at the Five Points. The iron railing was of several different patterns, much of which was unfit for further use as a fence or railing.

Two buildings, the Rotunda and the Engine House on Centre street, were vacated by the Department of Public Works as unfit for use, and were ordered by the Board of Commissioners to be taken down and removed.

The Rotunda has been removed.

A width of sixty feet next adjoining the ground purchased by the United States Government for the new Post Office building has been opened as a street from Park row to Broadway, twenty feet of which are at present occupied by the United States Government for the deposit of materials, etc., during the construction of the building.

Forty feet have been graded, paved, and opened for use.

The carriage-way of Broadway, from the new Post Office to Chambers street, has been widened twelve and a half feet, with a sidewalk of twenty-five feet in width, and the carriage-way of Park row, from the New Post Office to Centre street, has been widened eleven and a half feet, with a sidewalk of fifteen feet

The pavements of the new street, and of the widening of Broadway and Park row, are of granite, the same as the Broadway granite pavement, with a layer of six inches of concrete underneath.

Two fountain basins, of twenty-nine feet interior diameter each, have been constructed, with bottom and foundation of

rubble-stone and concrete, paved with brick, the whole being three feet in depth, with sidewalks of brick coped with blue "mountain grawacke" stone.

The central basins and figures are of iron, and so soon as the plumbing is completed which is now in progress, will be in readiness for use.

Another and a much larger and more elaborate fountain and basin, located south and in front of the City Hall, is now in progress of construction. The exterior is to be of granite and grawacke stone, and will be completed during the present season.

A system of water pipes has been laid for the supply of the fountains, drinking hydrants, irrigation, etc.

The necessary drain pipes have been laid and connected with the city sewers for the conduit of the overflow from the fountains and drinking hydrants, and for the surface and other drainage from the buildings and walks.

The work that has been done is as follows:

Regulating, grading, and trenching to a depth of from eighteen to twenty inches, $3\frac{6}{10}$ acres.

Fifteen thousand cubic yards earth excavation, exclusive of shaping.

One hundred and fifty thousand three hundred and eighty superficial feet of walks graded and prepared for the superstructure.

One hundred and thirty-one thousand four hundred square feet of asphalt, concrete, and Portland cement walks.

Five thousand one hundred and fifty-seven square yards pavement (with concrete foundation) of roadway in Broadway, Park row, and New street, laid and relaid.

Four thousand one hundred and thirty-five square yards concrete.

Two hundred and fifty-seven cubic yards masonry laid in fountains.

Seven thousand five hundred and fifty lineal feet five-inch and six-inch curb furnished and set.

One thousand one hundred and seventy lineal feet five-inch and six-inch curb reset (old).

Nine thousand six hundred and seventy-five lineal feet three-inch curb dressed and set.

Two thousand one hundred and forty-eight lineal feet gutter stone furnished and laid.

One thousand five hundred and ninety-one lineal feet drain pipe laid.

Two thousand one hundred and thirty-one lineal feet water pipe laid for fountains, drinking hydrants, and urinals.

Four urinals constructed.

Eighteen silt and stop-cock basins built.

Sixteen stop-cocks set.

One thousand one hundred locust posts furnished and set.

Eighty-two gas posts and lamps set.

PARK AVENUE PARKS.

These Parks are six in number, rectangular in form, and are enclosed with iron railings.

They are located in the centre of the Park avenue between the streets from Thirty-fourth street to Fortieth street, and contain an area of about $0\frac{193}{1000}$ of an acre each, or $1\frac{165}{1000}$ acres in the six.

The work of improvement was commenced on the twenty-seventh day of May last.

The ground was thoroughly trenched to a depth of from twenty to twenty-four inches, and all stones and rubbish found intermixed were thrown out and removed, after which it was fertilized and prepared for and in progress of being seeded.

The improvements were then suspended, so as to afford the New York and Harlem Railroad Company opportunity to enlarge the old and to construct new openings for properly lighting and ventilating the tunnel passing under the Parks, and to provide access by stairways to the Madison avenue horse cars, which were to pass through the tunnel.

The openings in each Park and a double flight of stone steps on the south side of Thirty-eighth street have been constructed by the Railroad Company, together with a single flight of steps on the south side of Thirty-fourth street, and another on the north side of Fortieth street. A granite coping and light composite iron railing for each opening are required to complete the work.

They are now in progress.

The ground has been reshaped, and so soon as the coping is put in place will be seeded.

The railing enclosing the Parks was found to be much damaged by heavy vehicles coming in contact therewith previous to the paving of the avenue. This has been repaired, and is now being painted.

The principal items of work done and materials used are as follows:

$1\frac{165}{1000}$ of an acre trenched from twenty to twenty-four inches deep, and then spaded six inches deep.

Two thousand eight hundred and seventy-five lineal feet iron railing repaired and painted.

Three hundred wagon loads manure used.

BOWLING GREEN.

This Park contains an area of $0\frac{517}{1000}$ of an acre.

The work of improvement was commenced on the eighteenth day of June last.

The coping of the fountain basin was reset, the basin repaired and made water tight, and the fountain cleaned and put in order. A walk of stone and gravel superstructure, twelve feet in width, was laid out and built around the fountain basin, with walks eight feet in width, to the gate entrances.

The remainder of the area was thoroughly trenched twenty inches in depth, fertilized, shaped, and seeded, and locust posts with chains were placed along the walks.

The iron railing and stone base were found in very bad condition. They have been put in as good repair as practicable, and have been painted.

The principal items of work done and materials used are as follows:

Eighteen thousand four hundred and forty-five square feet of ground trenched, shaped, fertilized, and seeded.

Four thousand and eighty-six square feet of walks built.

Forty cubic yards of gravel for walks furnished.

Eighty locust posts furnished and set.

THE BATTERY.

The work of improvement of the Battery was commenced on the 22d of June last, at which time the work upon the enlargement, which has been in progress for several years, was incomplete.

The old contract for the sea-wall and filling was canceled and a new contract made for the completion of the wall, of which one hundred and seventy-five lineal feet remained to be built.

The area unfinished required about sixty-five thousand cubic yards of filling.

This area was reserved as a place of deposit for surplus material, and the filling has been nearly completed.

This immense amount of filling, consisting of earth, stone, and rubbish, has been procured from the City Hall, Canal, Beach, and Duane Street Parks, and other sources, most of which has been obtained without cost to the city.

C.L. Spangenberg, Del.

A basin for the exclusive accommodation of small boats, containing an area of seven thousand five hundred square feet, and located near the south end of the Park, has been designed and is in course of construction.

The foundation is of piles, and is to be filled in with rubble-stone, and capped and planked with timber creosoted by the Seeley process, upon which is to be placed a sea-wall, the same in construction as is being built on the water-front of the enlargement, with two granite stairways and landings, ten feet in width, with bridges and floats.

The foundation, except the stone filling and plank, is complete.

A roadway forty-five feet in width, the superstructure of which is of the Scharf patent pavement, has been constructed from the northerly side of the Castle Garden to Battery place, opposite West street, for the removal of the baggage of the emigrants, all of which is landed within the enclosure of Castle Garden, under the direction of the Commissioners of Emigration.

State street, for its entire length opposite the Park, has been widened fifteen feet, a six-inch blue-stone curb set, the necessary receiving basins built, and the roadway paved with granite block pavement.

Whitehall street has been widened so as to form a straight line from State street to near the west line of the pier occupied by the Staten Island Ferry, a six-inch blue-stone curb set, receiving basins built, and the paving of the roadway with granite block pavement is in progress. Upon the strip parallel to and adjoining the interior face of the property of the United

States Government, over which a right of way was granted to the Government, a carriage-way of fifty-six feet in width, with ample sidewalks, is in progress of construction.

Upon the most elevated portion, overlooking the whole grounds and in a central position, a large concourse or plaza, elliptical in form, and containing an area of forty-nine thousand nine hundred and fifty square feet, to be well shaded, has been designed, and is in progress of construction, at the centre of which is to be placed a music stand.

This concourse will also be available for large public meetings.

A broad walk, or promenade, of thirty feet in width, adjoining the sea-wall, and fronting on and affording an uninterrupted view of the bay, is in progress.

The walks, when completed, will afford direct means to pass from the several entrances on one side of the park to the other, to the concourse, or to the broad promenade, by easy and agreeable curves.

The substructure of the concourse and walks is of stone, and mainly completed.

The substructure of the northerly portion is of the Schillinger patent pavement of Portland cement.

The sides are of blue-stone curb, two and a half inches in thickness.

The iron railing and base stone have been removed. So much of the railing as was required for the triangular Park at the Five Points was selected and removed to that Park.

The area devoted to lawn and plantations has been thoroughly trenched, and all stone, brick, and other rubbish removed. Where necessary to regulate and grade, the muck and topsoil have been removed and placed in piles, and replaced after the ground was properly shaped.

The portion known as the "enlargement" was chiefly filled in with rubbish; this has been trenched, the stones, brick, etc., removed, shaped properly, then ploughed, after which it was covered with topsoil or garden mould, derived from the lines of walks, from the City Hall and other parks, and by purchase.

The portion now complete has been fertilized with well-rotted horse manure, about fifty cords per acre being applied, and then spaded in to a depth from six to eight inches.

A thorough and ample system of superficial drainage has been designed and mainly constructed, and so arranged that the necessary pipes from the drinking hydrants, urinals, etc., can be connected.

A system of water pipes for the supply of the drinking hydrants, irrigation, etc., is now in progress.

Two keepers' houses, with tool rooms attached, have been constructed.

A ladies' cottage is to be placed near the corner of State and Whitehall streets, and six iron urinals are being put up at convenient points within the grounds.

The area of the Battery as originally enclosed, including Castle Garden, was $21\frac{93}{100}$ acres.

The present area from the curb line, exclusive of the basin, is $21\frac{199}{1000}$ acres, of which $9\frac{83}{100}$ acres are occupied by the walks, roadways, and the Castle Garden, with its enclosure.

The area in lawns and plantations is $11\frac{37}{100}$ acres.

The work done has been as follows, viz.:

Eleven acres of ground trenched and graded.

Seven acres of ground trenched, graded, and fertilized.

Fifty-five thousand cubic yards of filling placed in embankment.

Two hundred and twenty-nine thousand, seven hundred and fifty square feet of walks graded and prepared for the superstructure.

Thirty-five thousand and sixty-five square feet of superstructure of walks laid.

Four thousand eight hundred and fifty square yards pavement laid and relaid.

Two thousand three hundred and thirty lineal feet curb for streets furnished and set.

Ten thousand seven hundred and thirty-eight lineal feet curb for walks furnished and set.

Three thousand four hundred and fifty lineal feet drain pipe laid.

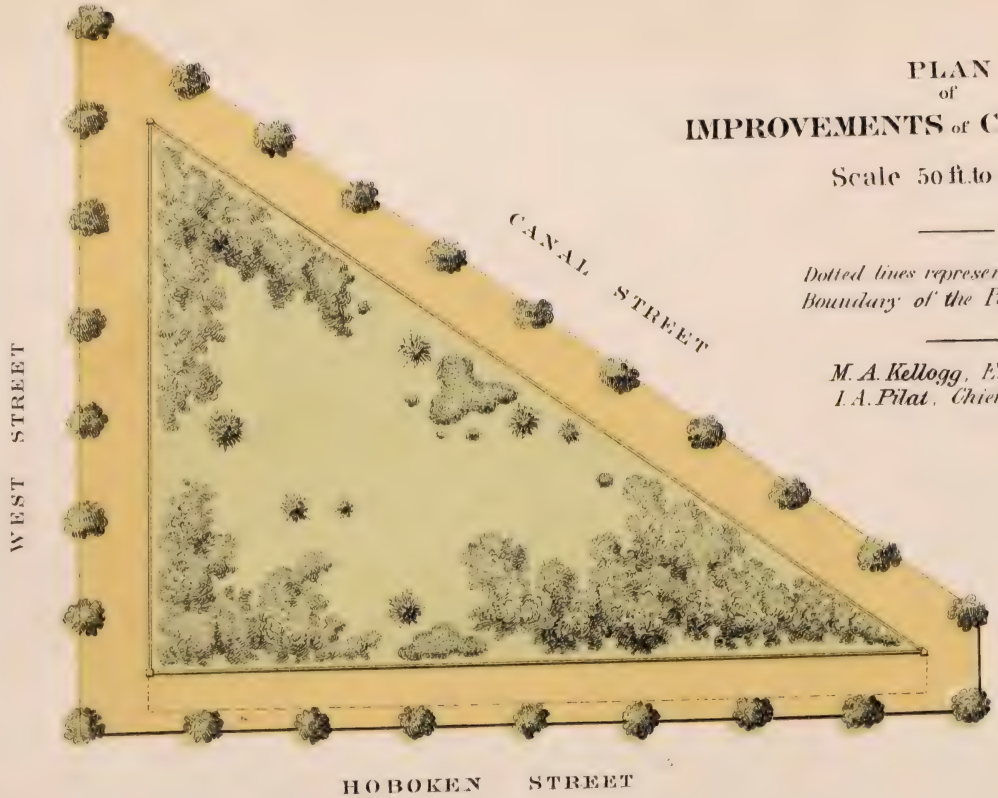
Three hundred and twenty-one lineal feet water pipe laid.

Five street basins built.

Twenty-six silt basins built.

Sixty-five cubic yards masonry built in sea-wall.

Five hundred and ninety-three cubic yards stone filling in foundation.



PLAN
of
IMPROVEMENTS of CANAL ST. PARK

Scale 50 ft. to an inch

Dotted lines represent the old Boundary of the Park

M. A. Kellogg, Eng. in Chief
I. A. Pilat, Chief L. Gardener

C. L. Spangenberg del

Three hundred lineal feet pile and timber foundation around basin.

Four hundred and eight cords manure furnished.

One thousand nine hundred and forty-five cubic yards garden mould furnished.

One thousand two hundred and fourteen locust posts set.

CANAL STREET PARK.

This triangular Park is located between Canal, West, and Hoboken streets, and contains within the present enclosure an area of $0\frac{318}{1000}$ of an acre.

When the work of its improvement was commenced, on the second of July last, it was found to be a place of deposit for cobble stones, of which there were about one thousand cart-loads thereon, and a dumping ground for the sweepings of the Clinton Market opposite, and for ashes, etc., from the adjoining buildings, besides being occupied on the West street side by booths.

The greater portion of cobble stones, ashes, etc., was carted to and placed in the filling at the Battery, together with an old cobble-stone pavement found about eighteen inches under the surface. The whole area was thorougly trenched and shaped and covered with one foot of garden mould and fertilized with horse manure.

The curb stone on Canal and West streets was taken up and relaid, and on Hoboken street a five-inch blue-stone curb was furnished and laid.

Tree holes in the sidewalk were excavated six feet in diameter and three feet in depth, the material removed, and the holes refilled with garden mould.

The area and form of the Park are such as to require its enclosure.

From the iron railing and brown-stone base formerly used around the City Hall Park sufficient was found to make the enclosure.

The base was redressed and set upon a rubble-stone foundation wall, three feet in depth, laid in hydraulic lime mortar, and the railing placed upon the base and painted.

The sidewalks were graded and surfaced with the Scharf patent pavement.

The principal items of work done are as follows:

One hundred and twenty-eight cubic yards of masonry in foundation.

Five hundred and seventy-five lineal feet base dressed and set.

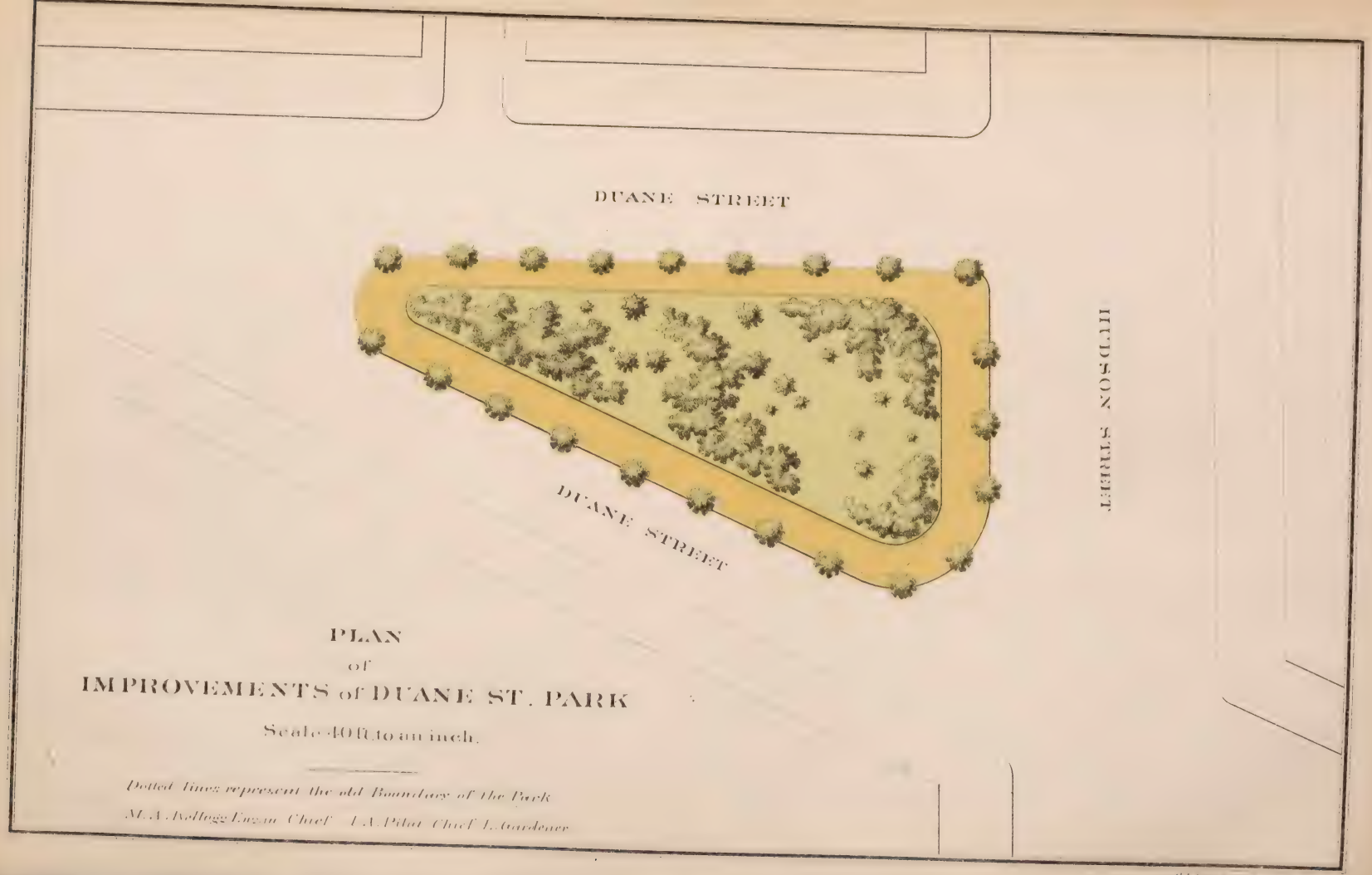
Five hundred and seventy-five lineal feet iron fence put up and painted.

Five hundred and nineteen lineal feet curb furnished, set, and reset.

Nine thousand four hundred and ten square feet walks constructed.

Five hundred and nine cubic yards garden mould furnished.

One thousand cubic yards material removed to the Battery.


DUANE STREET
HUDSON STREET
DUANE STREET
PLAN
of
IMPROVEMENTS of DUANE ST. PARK
Scale 40 ft. to an inch.
Dotted lines represent the old Boundary of the Park
M. A. Kellogg Engin. Chief J. A. Pilat Chief L. Gardener
C. L. Spangenberg del.

PARK AT "THE FIVE POINTS."

This triangular area is formed by Worth, Park, and Little Water streets, and when enclosed as designed will contain an area of $\frac{114}{1000}$ of an acre. It was intended to complete the improvement last season, but as a petition of the property-holders of that vicinity was then before the Common Council, asking for an ordinance changing the grade of Worth street, which would materially alter the grades surrounding the Park, no work was done thereon, except the dressing of three hundred and fifty lineal feet of the brown-stone base (which was taken from the City Hall Park), the dressing of the granite posts for angles, and the delivery of the iron railing from the Battery.

DUANE STREET PARK.

The location of this park is in Duane street, on the west side of Hudson street. Previous to its improvement it was an open common with a portion of the iron railing broken down, and some of it carried away,

The base, having originally been placed upon the surface of the earth without a foundation, was without line or grade.

The curb for the most part was worn out, and on the southerly side was within two feet of the railing.

The improvements made have been the placing of a new five-inch blue-stone curb around the whole Park, the construction of a stone foundation laid in hydraulic lime mortar for the support of the railing and the repairs of, and setting and painting of, the railing.

On Hudson street the railing was moved toward the curb $4\frac{3}{4}$ feet, making the sidewalk twelve feet in width; and on the south side it was set in so as to form a sidewalk ten feet in width, the northerly line remaining as heretofore. The old superstructure of the walks, consisting of flagging and brick, was removed, and the Schillinger patent pavement of Portland cement substituted. The area within the enclosure was graded and shaped, the soil being such as not to require fertilizing, and sufficient topsoil was supplied from the park to fill the holes excavated for trees to be placed in the sidewalks around the Park.

The area of this Park as enclosed is $0\frac{108}{1000}$ of an acre, and is triangular in form.

The improvement was completed in 1870, and consists chiefly of:

$0\frac{108}{1000}$ of an acre trenched and graded.

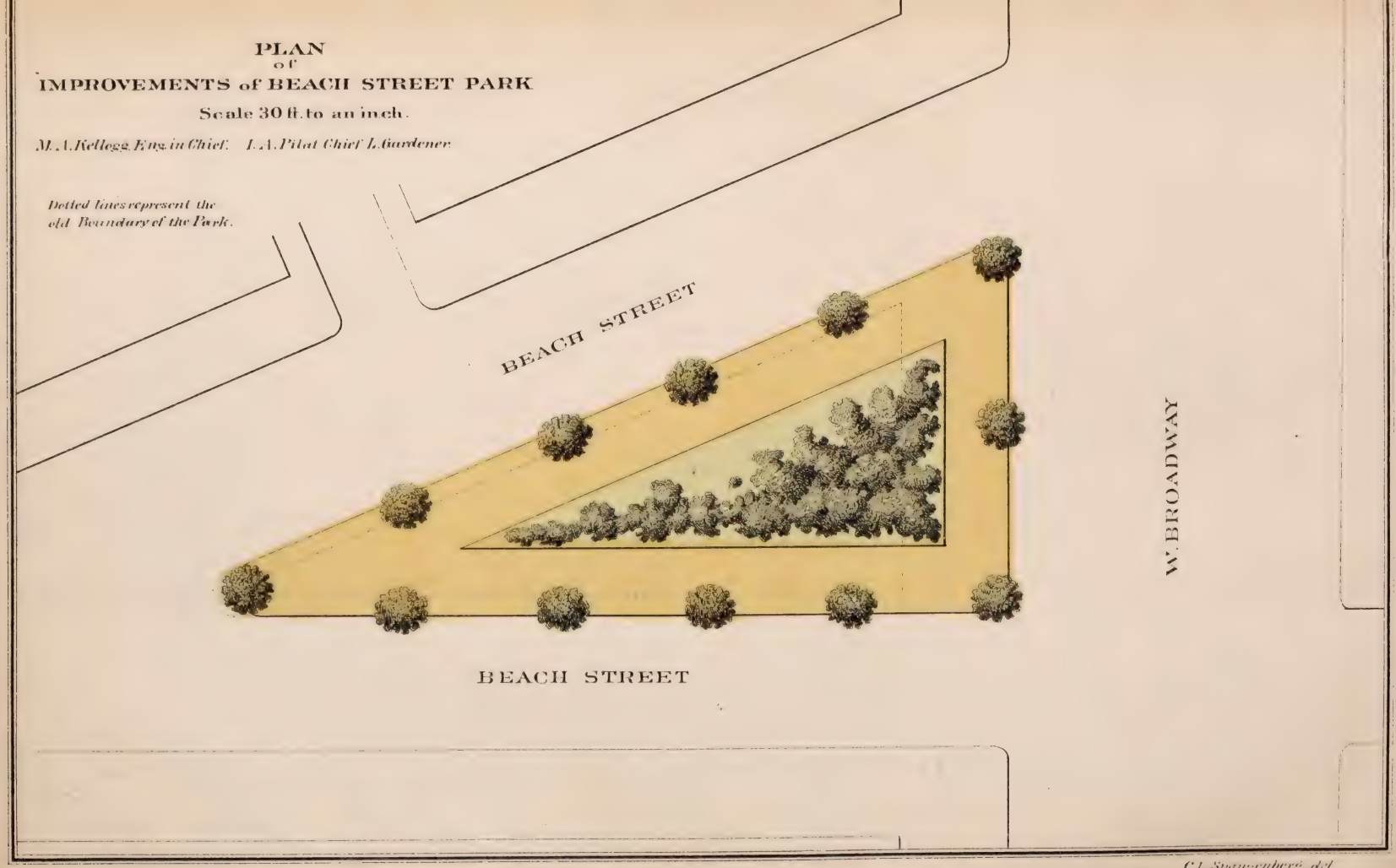
Seventy-five cubic yards masonry in foundation.

Three hundred and thirty lineal feet granite base course redressed and set.

Three hundred and thirty lineal feet iron railing repaired and put in place.

Four hundred and ten lineal feet curb furnished, set, and reset.

Two thousand nine hundred and fifty-seven lineal feet superstructure of sidewalks.



C. L. Spanzenberg del.

BEACH STREET PARK.

This Park is triangular in form, and is located in Beach street, west of West Broadway, and as enclosed contains an area of $0\frac{038}{1000}$ of an acre.

It was originally enclosed so as to give only three and a half feet sidewalks on the north and south sides, and nineteen and two-thirds feet on Hudson street.

The granite base course was placed on the earth without a foundation for its support, and was consequently much out of place.

A stone foundation, laid in hydraulic lime mortar, three feet in depth below the surface of the sidewalk, has been constructed, and the base course and iron railing placed thereon, giving a sidewalk of twelve feet in width on all sides.

A five-inch blue-stone curb was furnished and set around the whole Park, and the sidewalks finished with a superstructure of the Schillinger patent pavement of Portland cement. The interior was regulated and trenched, tree holes excavated on the sidewalks, and filled with mould procured from the Park, and the surplus material and topsoil removed to the Battery.

The work was completed in 1870, and consists of:

Two hundred and twenty lineal feet granite base and iron railing reset.

Fifty cubic yards masonry in foundation.

Three hundred and fifty-three lineal feet curb furnished and set.

Three thousand and fifty square feet superstructure of walks.

SIXTH AVENUE PARKS.

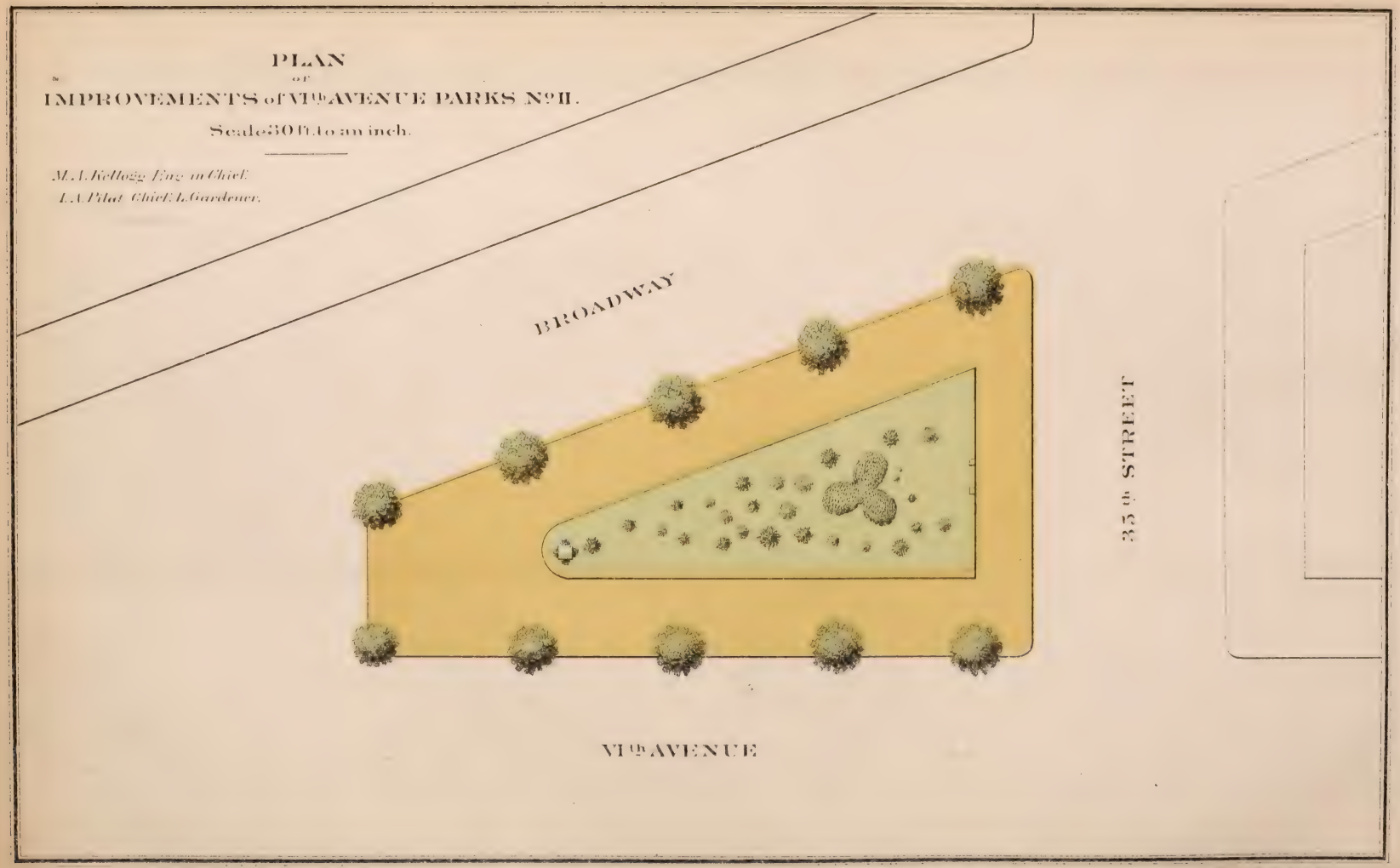
These two triangular Parks are formed by Broadway crossing the Sixth avenue diagonally.

The one with the base on Thirty-second street contains an area of $0\frac{144}{1000}$ of an acre, and the other, with the base on Thirty-fifth street, contains an area of $\frac{042}{1000}$ of an acre.

The work of improvement, under the direction of this Bureau, was commenced on the fifteenth day of September last, and consists of the removal of the trap-block paving and bridge stone which formed the superstructure of the sidewalks, the resetting and adjusting of the curb, the excavation for the trees, the filling of the holes excavated with topsoil, and the regulating of the sidewalks for the superstructure, which is of the Scharf patent pavement.

At the Thirty-second Street Park a drinking-hydrant was placed on the exterior of the railing, and a street washer on the inside for use of irrigation; also the plumbing was done, and a foundation built for a small fountain, which was presented and put up by the Portland Stone Company, without cost to the Department.

The principal items of work done are $0\frac{186}{1000}$ of an acre trenched and shaped; ten thousand four hundred and thirty-eight square feet walks shaped and superstructure laid; one hundred and seventy lineal feet curb reset.


PLAN
of
IMPROVEMENTS of VIth AVENUE PARKS No II.
Scale 30 ft. to an inch.
M. A. Kellogg Eng. in Chief.
I. A. Pilat Chief L. Gardener.
BROADWAY
35th STREET
VIth AVENUE
C.L.Sp. genberg del.

TOMPKINS PARK.

This Park is located between Avenues A and B and Seventh and Tenth streets, and in form is a square. It contains $10\frac{508}{1000}$ acres.

The Laws of 1866 declared Tompkins square "a public parade ground for the use of the National Guard of the First Division State of New York, at such times as commandants of regiments in said Division shall designate by orders," and it was thereby made "the duty of the Street Commissioner of the City of New York before the first day of July, 1866, to remove all trees, and other obstructions," from said square, and to level and grade the surface of said square in such manner as to render it available as such parade ground."

The Legislature, in 1868, made an appropriation, to be expended under the direction of the Street Department, "for paving Tompkins square, set apart for a military parade ground, with Fisk concrete or other suitable pavement, so as to make the same available for parade purposes."

The square was found graded, and with about two-thirds of the area covered with the Fisk concrete, with but few trees standing, the most of which were either dead or in an unhealthy condition. The necessity of retaining the grounds for a military parade ground, until such time as a ground better adapted for the purpose shall have been secured and prepared, is obvious; and the improvements that are being made, and which are nearly completed, are of a temporary character only, and with the view of ornamenting and providing necessary conveniences for the gratification of visitors.

The work done has been exterior to the line of lamps which defined the line of the grounds available for parade purposes, and which were located parallel to, and about sixty-eight feet from, the fence enclosing the square.

Upon this strip the concrete has been broken up and removed.

A width of twenty-five feet next adjoining the parade grounds has been regulated for a walk, and is now being surfaced with the Scharf patent pavement. The remainder of the border between the walk and railing is edged with a two-inch blue-stone curb along the walk, and enclosed with posts and chain, and has been trenched and covered with garden mould, and is being fertilized and prepared for seeding.

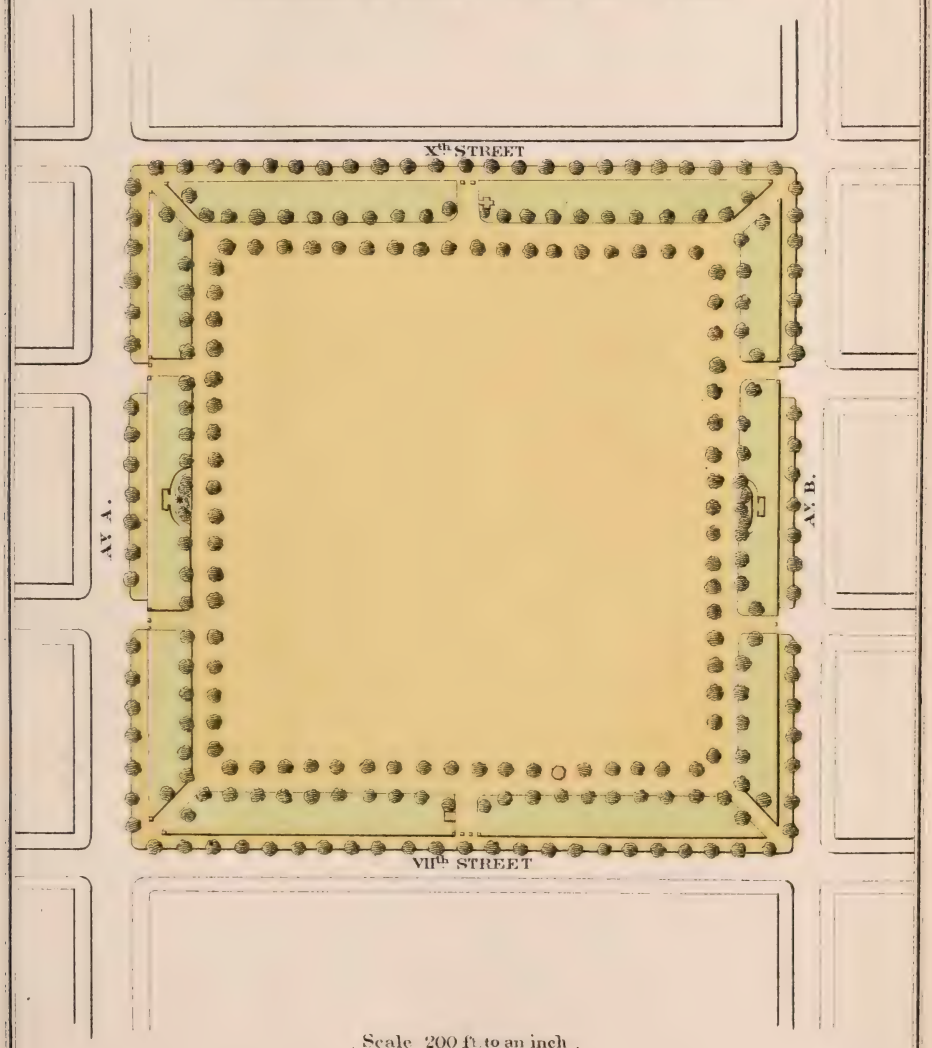
Provision has been made for lines of trees on each side of the walk. Basins have been built and pipes laid for the receiving and conducting of the surface water into the street sewers. Water pipes have been laid for the supply of the drinking hydrants, and other purposes.

Two keepers' houses, with tool rooms attached, a music stand, and two iron urinals, have been constructed. On the exterior the iron railing, the bars of which were at such distance apart as to permit boys to pass through, has had additional bars inserted, and is now being painted.

The curb stone surrounding the entire square has been taken up and relaid, and the sidewalks regulated and covered with a superstructure of asphalt pavement, with provisions for a line of trees adjoining the curb. The principal items of work done are as follows :

PLAN
of
IMPROVEMENTS of TOMPKINS PARK

M. A. Kellogg Eng. in Chief I. A. Pilat Chief L. Gardener.



Scale 200 ft. to an inch.

C. L. Spangenberg del.

Two thousand eight hundred and forty-two lineal feet curb reset.

Three thousand four hundred and thirty-one lineal feet two-inch curb dressed and set.

One thousand seven hundred and seventeen lineal feet drain and water pipe laid.

Twenty-three basins built.

One hundred and eleven thousand six hundred and seventy-one superficial feet walks constructed and in progress.

Three thousand cubic yards garden mould supplied.

Four hundred and twenty-five locust posts furnished and set.

WASHINGTON PARK.

This Park, originally known as "Washington Parade Ground," was a rectangular area nine hundred and fifty feet by four hundred and forty-six and one-half feet, but the extension of Laurens street, from Fourth street to the intersection of Fifth avenue with Waverly place, crosses the grounds diagonally, dividing them into two unequal areas.

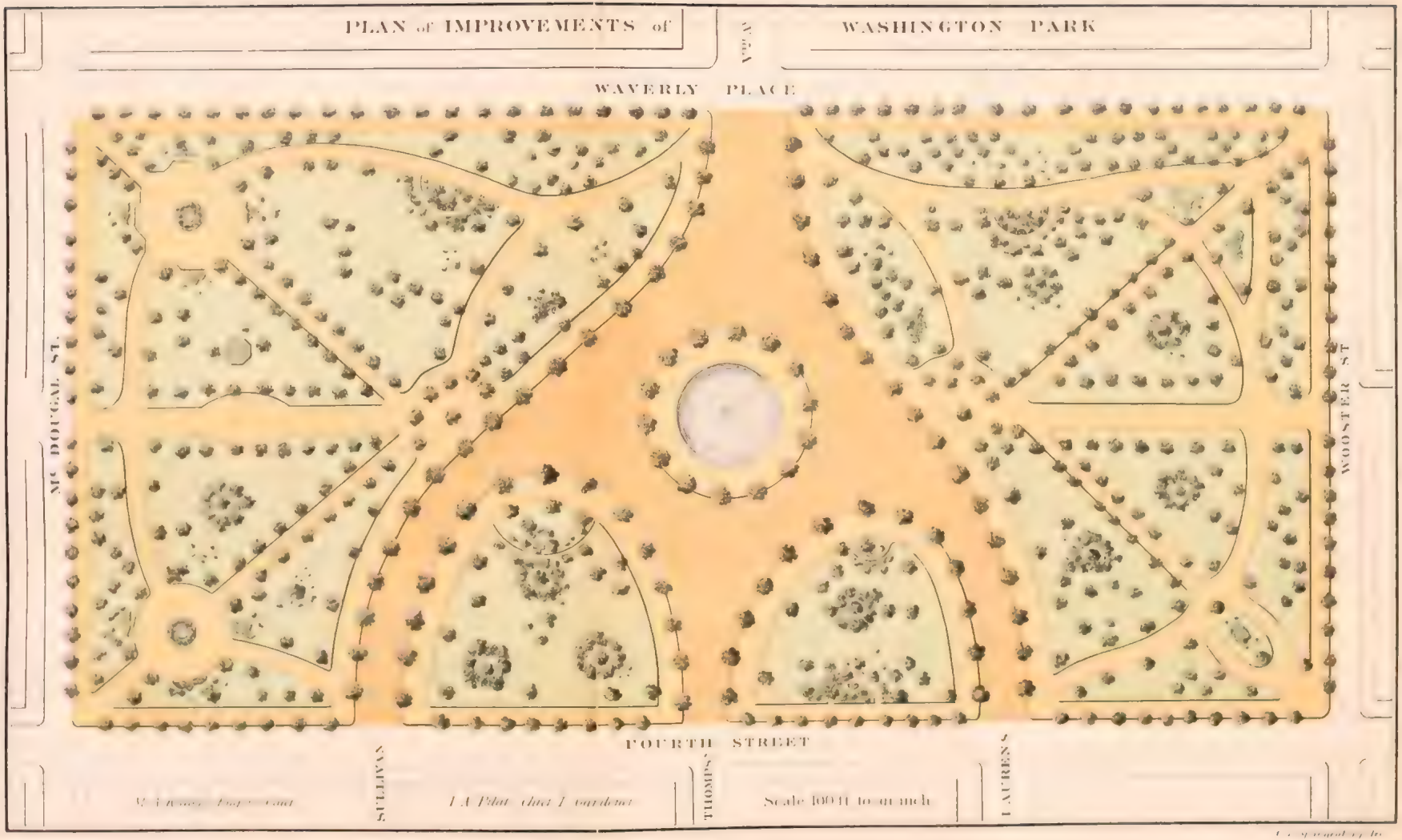
The design presented and adopted by the Board, and which is now being carried out, provides for three separate and distinct roadways diverging from the Fifth avenue, at its intersection with Waverly place, and crossing the grounds to, and intersecting Fourth street as follows, viz.: the easterly line opposite Laurens street, the central line at Thompson street, and the westerly line opposite the point where Sullivan street would intersect Fourth street if opened through the block from Amity street, which opening should for public convenience be made at an early day.

The construction of these roadways across the grounds converging into the Fifth avenue affords direct access for travel between the upper and lower portion of the city, at least as far down as Canal street, by three separate streets (Laurens, Thompson, and Sullivan), all of which are parallel to Broadway, and if properly paved cannot fail to relieve materially that overcrowded thoroughfare from Canal street to Twenty-third street.

At the intersection of the roadways, and at the centre of the original rectangle, a large fountain, with a basin eighty feet in diameter, is in progress, and is to be surrounded with a walk twenty-five feet in width and well shaded. This fountain will properly be the commencement of the Fifth avenue.

By the constructure of the roadways, four areas have been formed. The two main areas are laid out with walks, etc.; the two smaller ones, whose bases are on Fourth street, will have no interior walks. The area of the grounds, as originally inclosed, was $9\frac{738}{1000}$ acres, and the area, exclusive of the roadways, is $8\frac{115}{1000}$ acres. The work of improvement was commenced on the sixth day of October last, and the grading of the roadways and walks, and the shaping in the rough, are well advanced.

The necessary change of nearly the whole surface caused the topsoil or muck to be removed, and to be placed in piles until such time as the subsoil was properly shaped, and upon a portion the muck was found covered over with a layer of one or two feet of crude earth, which caused the rehandling of a large amount of material.


PLAN of IMPROVEMENTS of
WASHINGTON PARK
WAVERLY PLACE
MC DOUGAL ST.
WOOSTER ST
FOURTH STREET
SULLIVAN
THOMPSON
LAURENS
Scale 100 ft to an inch

Sufficient mould, not required for use in this Park, was procured to cover the whole area devoted to lawns at Tompkins square, and was transported to that Park.

A six-inch blue-stone curb has been placed around all the roadways within the Park, and sufficient curb of the same quality is on the ground and is being placed around the whole exterior.

A curb of two inches edge is being dressed out of the old curb of this and other Parks and placed at the side of the walks.

The superstructure of the roadways is to be of what is known as the "S. H. Ingersoll improved wood pavement."

The flooring and blocks laid last season, from the Fifth avenue to Laurens street, were treated by the "Robbins process for preserving wood."

Upon the remainder the flooring and blocks are to be "Burnetized."

The superstructure of the walk is to be of "Day's vulcanized concrete."

The fountain basin, the excavation for which is in progress, consists of a rubble-stone and concrete bottom paved with brick, and a brick rim capped with mountain grawacke stone. The design for the fountain has not yet been determined.

An ample and thorough system for the drainage of the surface water, sewerage, etc., is in progress of construction and nearly completed. The iron railing and granite base have mostly been taken down and removed, and so much as will be required to enclose Reservoir square is being transported to that Park.

The work is now so far advanced that it is expected that the superstructure of the roads and walks, the setting of the curb, and the final shaping, fertilizing, and seeding of the grounds will be completed early in the summer.

The quantities of work done to the present date are as follows :

Thirty thousand cubic yards earth handled.

One hundred and eleven thousand six hundred and sixty square feet walks graded and substructure placed thereon.

Seven thousand eight hundred and fifty-five square yards roads graded and prepared for superstructure.

Four thousand three hundred and fifty square yards pavement laid.

Three thousand and thirty-five lineal feet six-inch curb set.

Two thousand five hundred and sixty-five lineal feet two-inch curb cut and set.

Two thousand one hundred and sixty lineal feet drain pipe laid.

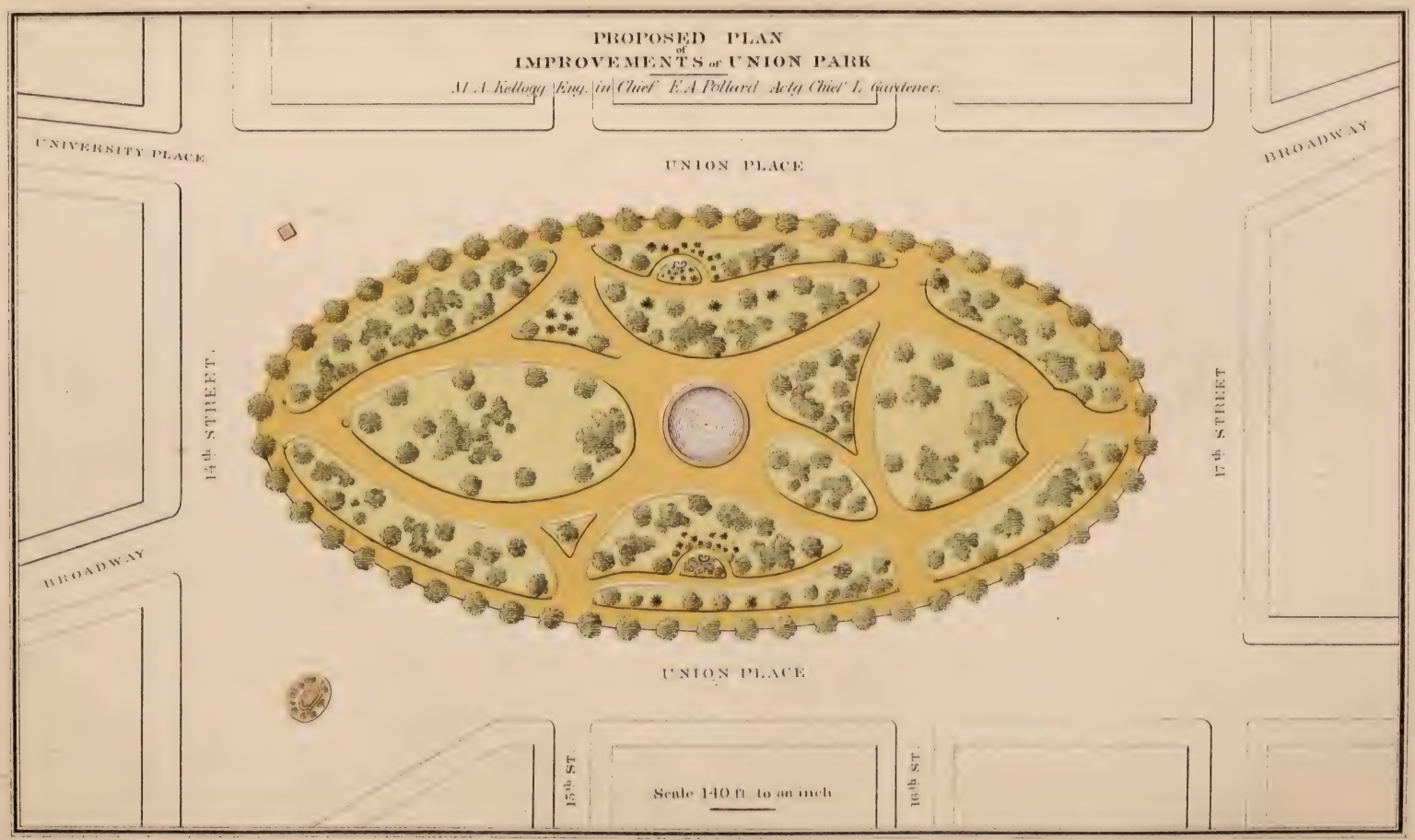
Five street basins built.

Sixteen silt basins built.

PARK AT COOPER INSTITUTE.

This triangular area, containing $\frac{224}{1000}$ acres, is formed by the intersection of Third and Fourth avenues, with its base on Seventh street.

The improvements made have been the trenching and reshaping of the grounds, the erection of an iron urinal near



C. L. Spangenberg del.

the Seventh street entrance, with a walk to and from the same, and the laying of the necessary Croton water and drainage pipes for its use and for irrigation.

In my opinion, the improvements still required are the removal of the present high and close iron railing, which now almost prevents a view of the grounds from the exterior, and the substitution of railing and base from Washington square instead, a new six-inch curb and walk superstructure to be substituted in place of the present curb and flagging, and the erection of a drinking hydrant for horses at the southerly end of the sidewalk surrounding the Park.

UNION PARK.

The sidewalk exterior to and surrounding the Park was of the Fisk concrete, and had become entirely disintegrated. The work of its removal and the laying of the Scharf patent pavement was commenced in December last, but the frost interrupted the work until the present season. It is now completed.

The necessary removal of the subsoil and deposit of mould have been made for a line of trees around the exterior of the Park. No work has been done on the interior.

The necessary surveys have been made, the plan for its improvement prepared and adopted, and it is intended to commence the work at an early day. The area of the park is $3\frac{483}{1000}$ acres. The removal of the present high iron and stone enclosure, and the widening of the sidewalk to twenty feet in width, are recommended.

MADISON PARK.

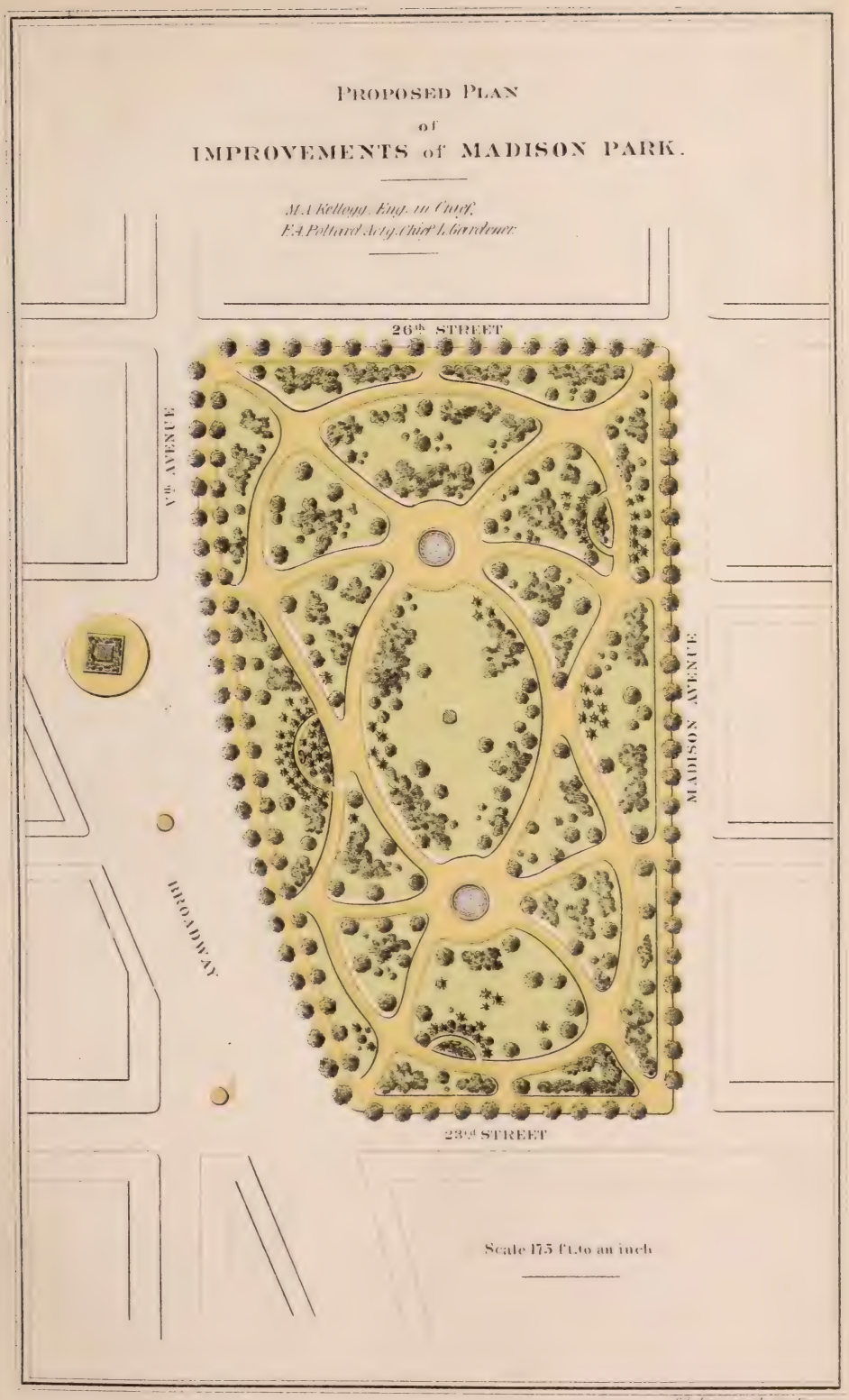
The necessary surveys have been completed and a plan for its improvement submitted to the Board for approval. The resolution adopted by the Department on the 20th of December last, "that in preparing the new plan for the improvement of Madison square the line of the square be changed so as to carry the easterly line of Broadway, at Twenty-third street, as near as practicable in a direct line to Twenty-fifth street, and thereby provide additional and necessary carriage-way for public accommodation at that point," has been carried out in the plan prepared by starting the curb line at the easterly curb line of Broadway, at Twenty-third street, and by sweeping around with a regular curve of large radius to the line of the easterly curb of the Fifth avenue, at Twenty-sixth street.

This will add about sixty feet to the width of the carriage-way at this most contracted point. It is also proposed to surround the Worth monument with a circle, the curb line of which is to be twenty feet from the present enclosing fence, and thereby utilize the large area south of the monument as a carriage-way.

The design contemplates the construction of two small fountains, with basins about thirty feet in diameter, and the construction of walks with easy curved lines affording means of crossing from one side of the Park to the other in nearly a direct line. The area of the Park, if changed to the proposed plan, will be $6\frac{492}{1000}$ acres.

RESERVOIR PARK.

This Park comprises the grounds between the old Receiving Reservoir and the Sixth avenue and Fortieth and Forty-second


PROPOSED PLAN
of
IMPROVEMENTS of MADISON PARK.
M.A. Kellogg, Eng. in Chief.
F.A. Pollard Actg. Chief L. Gardener.
26th STREET
Vth AVENUE
MADISON AVENUE
BROADWAY
23rd STREET
Scale 175 ft. to an inch
C.L. Spangenberg Del.

streets, and was the site of the Crystal Palace, destroyed by fire in October, 1858.

It contains an area of $4\frac{775}{1000}$ acres. The plan presented for its improvement was adopted, and work commenced, on the Twenty-seventh day of March last.

The location of the Park is such as will admit of its treatment more as a pleasure ground than as a location requiring accommodation for business, public travel, etc.

The design that is being carried out is to give to the passer-by a view of the interior, and at the same time afford the visitor within the enclosure a retired retreat.

The walks are winding, and at the same time give nearly a direct line of communication between the several entrances. On the central portion of the area is to be placed a Music Pavilion, surrounded by a large open lawn, which is to be open to the public on music days.

Two light iron summer houses and a cottage for ladies and children are proposed to be constructed, together with the requisite systems for drainage and Croton water. The present railing, which was originally constructed for the enclosing and protection of the Crystal Palace, and which from the action of the fire and its long exposure is in bad condition, is to be removed, and replaced with a portion of the railing and granite base from Washington Park.

ABINGDON, STUYVESANT, AND CHRISTOPHER STREET PARKS.

No plans of improvement have as yet been prepared for these Parks, but it is expected that their improvement will be made and completed during the present season.

Their areas are as follows:

Abingdon, $0\frac{202}{1000}$ acres.
Stuyvesant, $4\frac{229}{1000}$ acres.
Christopher Street, $0\frac{139}{1000}$ acres.

MORNINGSIDE PARK.

This Park contains an area of $31\frac{238}{1000}$ acres, and is formed of the ridge of rock, mostly bare, from One Hundred and Tenth street to the Manhattan valley, and mainly between Ninth and Tenth avenues.

The face is a steep and precipitous slope, rising to a height of about one hundred feet above the level land known as the Harlem plain, a small portion of which is comprised within its limits.

Its boundaries are One Hundred and Tenth street on the south, and New avenue, midway between the Eighth and Ninth avenues, to One Hundred and Thirteenth street, the diagonal avenue to Ninth avenue, and Ninth avenue to One Hundred and Twenty-third street on the east, One Hundred and Twenty-third street on the north, and on the west by Tenth avenue to One Hundred and Twenty-second street and the New avenue on top of the bluff from One Hundred and Twenty-second street to One Hundred and Tenth street to its intersection with Ninth avenue. A topographical survey and map of the Park are in progress, and are necessary before any plan for its improvement can be determined upon.

HIGH BRIDGE PARK.

The report of the commissioners appointed to assess the damage and benefit of opening this Park was confirmed by

the Supreme Court on the eighteenth day of October, 1869, and the actual opening thereof was on the Twenty-first day of the same month.

The new Croton Reservoir, the tower for high service of Croton water, and Engine House, and approach to High Bridge, are all within these grounds.

The front upon the Harlem river is steep and precipitous, and rises from tide water to the top of the coping of the Reservoir, about two hundred and seventeen and one-half feet.

The topographical survey and map which have been in progress will soon be completed, from which can be determined a plan for its improvement.

The area of the ground, including the Reservoir, is $23\frac{38}{100}$ acres.

The following table shows the areas of the different Public Parks of the city, as at present improved or in *process of being improved :*

Battery	21.199	acres.
Bowling Green	0.517	"
City Hall	8.234	"
Duane Street	0.108	"
Five Points	0.114	"
Beach Street	0.038	"
Canal Street	0.318	"
Christopher Street	0.139	"
Washington	8.115	"
Cooper Institute	0.224	"
Tompkins	10.508	"
Abingdon	0.202	"
Stuyvesant	4.229	"
Union	3.483	"
Madison	6.492	"
Sixth Avenue	0.186	"

Park Avenue	1.165	acres.
Reservoir	4.775	"
Central	867.070	"
Mount Morris	20.173	"
Morningside	31.238	"
High Bridge	23.380	"
Boulevard and Sixty-third street	0.344	"

III. IMPROVEMENT OF "THE BOULEVARD" AND OTHER AVENUES AND STREETS.

"THE BOULEVARD," FROM FIFTY-NINTH TO ONE HUNDRED AND FIFTY-FIFTH STREET.

The work of regulating and grading this avenue was commenced in September, 1868, and has been prosecuted without interruption to the present date.

Since the organization of the present Department, and by its direction, the work has been more vigorously prosecuted than heretofore, and the grading, with the exception of the heavy filling between Eighty-second and Eighty-sixth streets, and the excavation between One Hundred and Fifty-second and One Hundred and Fifty-fifth streets, which are well advanced, is mainly completed.

The line of the avenue from Fifty-ninth street to Eighty-eighth street, and from One Hundred and Fourth street to One Hundred and Eighth street, follows the course of the

PLAN of SUPERSTRUCTURE
BOULEVARD 60th to 128th STREET

PLAN of SUPERSTRUCTURE
at the
VIth AV. 110th ST. to HARLEM RIVER.

Scale 15 ft to an inch

M. A. Kellogg Engr in Chief

C. L. Spangenberg Del

Bloomingdale road, which is an old and much traveled road, it being the main line of travel from the upper and west side of the city, and every possible effort has been made during the past season to afford accommodation to the travel.

At the date of the organization of the Department but little had been done toward the advancement of the superstructure of the avenue.

About twenty thousand seven hundred square yards of the Telford foundation had been laid, three thousand one hundred and fifty lineal feet of roadway curbed, and twelve thousand seven hundred cubic yards of gneiss stone broken; but no provision had been made for the top course of broken stone of trap-rock.

In compliance with the resolution adopted by the Board on the sixth of May last, a report was made upon the condition of the work and the materials and means required to complete the superstructure of one roadway of forty feet in width, from Fifty-ninth to Eighty-eighth street, and from One Hundred and Third street to One Hundred and Eighth street, so as to provide, in connection with the Bloomingdale road, a passable roadway during the winter months. This was accomplished.

The portion from Fifty-ninth street to Eighty-eighth street was opened to the public on the first day of November, and from One Hundred and Third street to One Hundred and Eighth street, on the twenty-fourth day of November.

In addition to this a continuous line of Telford pavement has been laid to One Hundred and Twenty-seventh street, and broken stone of gneiss placed thereon.

The Telford pavement for the second roadway, from Fifty-ninth street to Seventy-seventh street, is nearly completed; and the Telford pavement and broken stone laid on both sides for about three blocks, between One Hundred and Thirty-ninth and One Hundred and Forty-third streets.

The curb is set, the first layer of broken stone rolled, and the top layer of trap-rock placed upon one roadway from Eighty-eighth street to One Hundred and Third street; with the present means and supply of materials, and with the aid of another steam roller which has been ordered, there will be no difficulty in not only completing one roadway through to One Hundred and Fifty-fifth street, but also advancing the second far towards completion during the present season.

The plan adopted for the improvement of the avenue is as shown by the accompanying section, and consists of a sidewalk on each side, of twenty-four feet in width, two carriage-ways of forty feet in width, with a strip twenty-two feet in width at the centre; and to have four lines of curb, with a row of trees along each curb, together with a sewer, Croton water, and gas pipes placed under each sidewalk.

The superstructure is being constructed upon what is known as the Telford plan.

A description of the work may be useful as a matter of record.

It is briefly as follows:

The road-bed is trimmed to the required form, which is a descent of eight inches from the curb along the centre strip to the outer curb, and the ground is made firm by the use of a six-and-a-half-ton roller.

Upon the prepared road-bed, a pavement of quarry stones is set by hand, the stones being from eight to ten inches in depth, three to six inches in width, and not exceeding fourteen inches in length, and of as nearly an uniform size as possible, with parallel sides.

The stones are laid lengthwise across the road, with the broadest edges down. After being closely set together, they are firmly wedged by inserting and driving down with a bar used for the purpose, in all possible places, stones of the same depth, until every stone is bound and clamped in the proper position.

The projections of the stones on the top of the pavement are then broken off with a light hammer, and the spalls worked into the interstices not already filled by the process of wedging, by which the pavement is reduced to an even surface of eight inches.

Broken stones of gneiss, of a size to pass through a ring two inches in diameter, are then spread evenly over the pavement to such a depth as will make six inches when rolled. This layer is then rolled, first with a six-and-a-half-ton horse roller, so that the steam roller can pass over without difficulty, and, when thoroughly compact, is in readiness for the top layer.

The top layer is of broken stone of trap-rock, of a size to pass through a ring one and a half inches in diameter, spread evenly over to such a depth as will bring the surface to the proper grade. After being made thoroughly compact, screened gravel, to the depth of about one and a half inches, is spread on top, and thoroughly rolled.

Both the stone and gravel are kept well moistened, by means of sprinkling carts, while the rolling is going on, and the gravel, working down into the interstices under the roller, consolidates the whole material.

When completed, the entire depth of pavement, stone, and gravel is eighteen inches.

It has been found impracticable to consolidate the stone, when placed on the road, by the heaviest rolling with a sixteen-ton steam roller, without some binding material. Hard gravel has been used for this purpose as being preferable to loam or other material. When the avenue is first thrown open to travel the roadway is kept moist by sprinkling, and a man is employed to pick off any stones that may be loosened by the feet of horses, and a two-horse roller is kept passing over it until it becomes thoroughly compact and smooth.

It would be very desirable to have the construction of the sewers, which, by chapter three hundred and sixty-seven, section seven, of the Laws of 1866, are to be constructed under the direction of this Department, commenced as soon as the plans shall be prepared by the Department of Public Works; and also the laying of the Croton water and gas pipes.

The quantities of work done since September, 1868, when the work was commenced, are as follows:

Two hundred and thirty-four thousand cubic yards earth excavation.

One hundred and thirty-one thousand four hundred cubic yards rock excavation.

Two hundred and sixty-three thousand cubic yards filling, in addition to filling made from excavation.

Forty-two thousand six hundred square yards roadway finished complete.

One hundred and thirteen thousand four hundred square yards Telford foundation laid.

Forty-seven thousand cubic yards macadam stone broken.

Seven thousand two hundred and fifty cubic yards macadam stone of trap-rock finished.

Twenty-six thousand nine hundred lineal feet curb stone set.

Twenty-eight thousand seven hundred square feet flagging laid and relaid.

As portions of the roadway have been completed, they have been opened for public use, and a repair and maintenance force has been placed thereon, keeping the loose stones picked up, the droppings removed, and the road moistened to prevent dust, etc.

SEVENTH AVENUE, FROM ONE HUNDRED AND TENTH STREET TO THE HARLEM RIVER.

The length of this avenue, from the northerly end of the Central Park to the exterior street on the Harlem river, is two and two-fifths miles.

The quantity of material to be excavated and removed for its regulating and grading was estimated to be four hundred and eighty-one thousand five hundred cubic yards, of which about four-fifths was rock.

The work of regulating and grading is being prosecuted under contract.

The first contract was made for the upper section (north of One Hundred and Forty-seventh street) on September 13th, 1866, and for the lower section (from One Hundred and Tenth street to One Hundred and Forty-seventh street) on June 7th, 1867.

The work is now rapidly approaching completion.

The plan for finishing the surface of the avenue is as shown by the accompanying plan, and consists of a roadway eighty feet in width, with sidewalks thirty-five feet in width, with a line of sewer, Croton, and gas pipes under each sidewalk, and a row of trees along each curb.

Contracts have been made for the laying of the Telford foundation, and broken stone of gneiss, and for the blue-stone curb and flagging. The work upon the foundation pavement, and the delivery of the curb, are now in progress.

It would be very desirable that the construction of the sewers should be commenced at once, and that the laying of the water and gas pipes should be commenced as soon as the sidewalks are graded and prepared for their reception.

The following quantities of work have been done since the 20th of April last, viz.:

Seventeen thousand six hundred cubic yards earth excavation.

Fifty-nine thousand five hundred cubic yards rock excavation.

SECTION

SUPERSTRUCTURE of VII th AVENUE

Scale 15 ft to an inch

M. I. Kellogg Eng in Chief

SIXTH AVENUE, FROM ONE HUNDRED AND TENTH STREET TO THE HARLEM RIVER, NEAR ONE HUNDRED AND FORTY-SIXTH STREET.

The length of this avenue, from the northerly terminus of the Central Park at One Hundred and Tenth street to the point where the same has been regulated and graded at the Harlem river, is $1\frac{83}{100}$ miles. This avenue was opened on May 1st, 1868, and as soon as the surveys had been made the work of regulating and grading was commenced, and was completed in August, 1870.

The surface of the ground for nearly the whole distance was below the established grade, and the material for forming the embankment (with the exception of about twenty-one thousand cubic yards, which were on the avenue and above grade), was supplied from sources exterior to the avenue. The section north of One Hundred and Thirty-eighth street was done by contract, the material being supplied from the surplus excavation of the Seventh avenue. The work south of One Hundred and Thirty-eighth street was done by days' work by men in the employ of the Department, the material for the filling being obtained from cellar excavations and the grading of private property, etc.

The total filling required, exclusive of the material furnished from the excavation of the avenue, was two hundred and eighty thousand two hundred cubic yards. The finished surface of this avenue is as shown by the accompanying plan, and consists of a carriage-way eighty feet in width, with sidewalks thirty-five feet in width, with a line of a sewer, Croton and gas pipes under each sidewalk, and a line of trees along the curb line.

The roadway is of Telford pavement, eight inches in depth, covered with ten inches of macadam stone. A contract was made for the laying of the Telford pavement and broken stone of gneiss from One Hundred and Tenth street to One Hundred and Forty-fifth street, in July last, and the section between One Hundred and Tenth and One Hundred and Twenty-fifth streets was completed before the first of December last (as per the terms of the contract), and the curb and flagging were furnished and set; and only for the impossibility of securing a sufficient quantity of broken stone of trap-rock, either by contract or otherwise, it would have been completed before the frost set in. This, however, has been accomplished this season, and the avenue from One Hundred and Tenth street to One Hundred and Twenty-fifth street will be opened for public use on the 22d inst. The laying of the Telford and the delivery of the broken stone and curb are so far advanced as to safely promise its completion to One Hundred and Forty-fifth street by the first of October next.

The following are the quantities of work done for the superstructure since the twentieth of April last, viz.:

Fifteen thousand cubic yards earth excavation (trimming roadbed and sidewalks).

Seventy-four thousand six hundred square yards Telford furnished and laid.

Twenty thousand nine hundred cubic yards broken stone furnished.

Eight thousand nine hundred and forty lineal feet curb laid.

Twenty-six thousand three hundred square feet flagging.

Rockwood Phot.

SIXTH AVENUE.

THE AVENUE ST. NICHOLAS, FROM ONE HUNDRED AND TENTH STREET TO ONE HUNDRED AND FIFTY-FIFTH STREET.

This avenue is one hundred feet in width, and commences at the intersection of Sixth avenue and One Hundred and Tenth street, and follows the line of the Harlem lane to the Eighth avenue; thence to One Hundred and Twenty-sixth street, and along at the base of the high rock ridge between Eighth and Ninth avenues, to its intersection with the Ninth avenue at One Hundred and Forty-fifth street, from which point it follows the line of the Ninth avenue to One Hundred and Forty-eighth street, and the line of the Kingsbridge road to One Hundred and Fifty-fifth street. A contract for the regulating and grading of the portion between One Hundred and Twenty-fifth and One Hundred and Fifty-fifth streets was made on the thirtieth day of November, 1869, and the work was commenced and is still in progress.

Upon the portion of the avenue between One Hundred and Tenth and One Hundred and Twenty-fifth streets the present surface of the ground is below the established grade for the entire distance, and consequently affords no material for the necessary filling.

The material, therefore, must be procured from outside the line of the avenue.

The necessary surveys have been made, and, by direction of the Board, the work was commenced in October last, and is now being prosecuted by workmen in the employ of the Department, under the direction of this Bureau, as well as by contract.

The work has thus far progressed without interfering with the travel upon Harlem lane, which is the main thoroughfare to and from the north end of the island, and the completion of the Sixth avenue, from One Hundred and Tenth street to One Hundred and Twenty-fifth street, within a few days will obviate any such interference.

In August last the grading of the avenue following the line of the Kingsbridge road, from One Hundred and Forty-eighth street (the point where the avenue diverges from the line of the road) to One Hundred and Fifty-fifth street, was so far advanced as to make it practicable to construct the superstructure thereon before the winter months, thereby affording the vicinity and north of One Hundred and Fifty-second street a passable roadway in connection with the old road.

Agreeably to instruction, a plan for the superstructure, with the location of the sewers and Croton and gas pipes, was prepared, and, with a report thereon, was submitted. On the fifth of September, the plan was approved and adopted by the Board, and the work directed to be proceeded with forthwith. The materials were ordered at once, and the stone foundation, curb, gutter, and flagging, and one coat of gravel, were in place and rolled previous to the stoppage of the work by the frost, and afforded the accommodation to the public intended. The final surface of gravel is now being applied.

The plan adopted for the improvement of this avenue is as shown by the accompanying drawing, and consists of a roadway of fifty-five feet in width, with sidewalks twenty-two and a half feet wide, a sewer, Croton and gas pipes laid under each sidewalk, and a line of trees along each curb.

The superstructure of the roadway is a rubble-stone foundation twelve inches in thickness, and surfaced with six inches of gravel, and with a twenty-inch curb of five inches edge, and a fourteen-inch blue-stone gutter.

The manner of construction is briefly as follows:

The road-bed is truly shaped and trimmed with a crown of eight inches at the centre, and made firm by the use of a roller. Upon this prepared road-bed rubble stones, such as are obtained from ordinary rock excavation, are deposited from carts. The stones that are too large are broken up, and the surface evenly adjusted by a little labor of the hand.

The largest stones used are to be not over nine inches in dimensions measured the largest way, and are generally less than that in size, and so far as practicable are uniform in size. The curb is set while the work of placing the stone is progressing. The layer having been properly formed, it is surfaced by spreading over it fine rubble or quarry chips, or, if these are not available, it is broken over by hammers to fill the interstices and smooth the surface, and a light roller passed over to compact it.

A light layer of gravelly earth or hard pan is then spread over and moistened by means of sprinkling carts, and rolled down firmly with a light roller, so as to effectually close all apertures and interstices aganst the admission of the gravel to be placed on top.

The grave is applied in two layers, and all the large stones raked out and removed and while being rolled it is kept well moistened, care being taken not to have it too wet.

The first layer is well compacted before applying the top layer.

Before the roller is put on the last or top layer a light coat of gravelly loam or hard pan, about one-fifth of the bulk of the gravel, is spread and thoroughly intermixed with the gravel by the use of rakes, so as to make it bind properly, care being taken that too much loam is not applied, and that it is well incorporated with the gravel.

The road is then thoroughly rolled, and until the surface has become hard and consolidated.

Men skilled in shaping, raking, and keeping true the grade and crown of the surface are employed during the finishing of the surface.

While the first layer of gravel is being rolled the gutter stone should be set.

It is believed that gravel roads constructed with either rubble or Telford stone foundations are better suited for light and pleasure travel, and are more agreeable both for carriages and horses, less difficult and expensive to maintain, require less attention in watering, and raise less dust than roads finished with a macadam surface.

The quantities of work done since the twentieth of April last are as follows:

Thirty-two thousand cubic yards earth excavation.

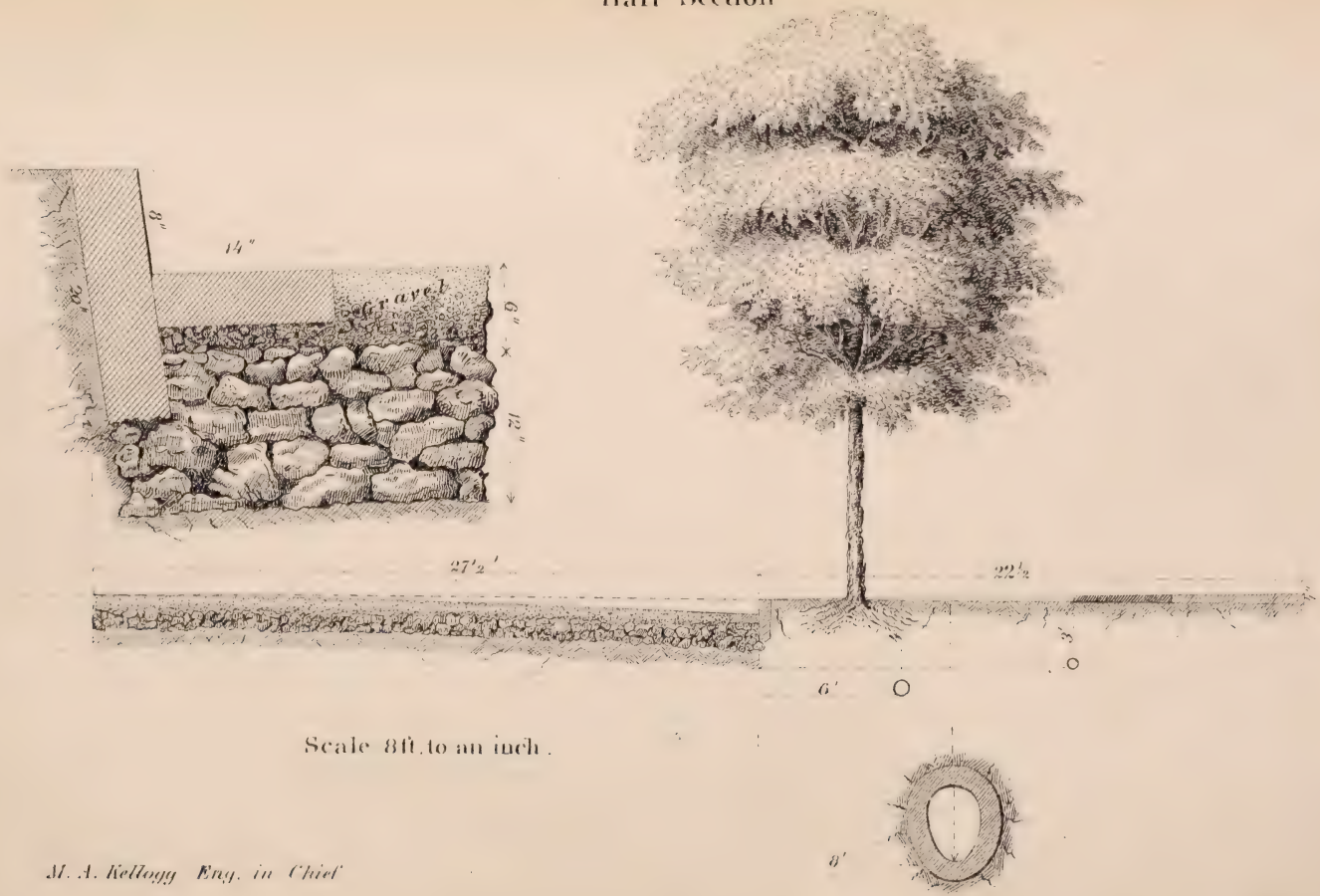
Seventeen thousand cubic yards rock excavation.

Twenty-five thousand cubic yards filling furnished.

Three thousand eight hundred cubic yards rubble stone in superstructure of roadway

AVENUE ST. NICHOLAS

Half Section



Scale 8ft. to an inch.

M. A. Kellogg Eng. in Chief

C. L. Spangenberg del.

Three thousand nine hundred lineal feet curb and gutter furnished and set.

Two thousand nine hundred lineal feet flagging furnished and laid.

ONE HUNDRED AND FORTY-FIFTH STREET, BETWEEN SIXTH AND SEVENTH AVENUES.

A contract for the regulating and grading of this street was made on the 7th of June, 1869, and the work was completed in June last.

The entire work was embankment, and the material required was thirty-six thousand six hundred cubic yards, all of which was procured outside the line of the street.

It is desirable that the superstructure upon this portion of the street should be constructed, by which an outlet can be had from the upper end of the Sixth avenue to the Central Bridge by way of the Seventh avenue.

TENTH AVENUE, FROM ONE HUNDRED AND FIFTY-FIFTH STREET TO ONE HUNDRED AND NINETY-FOURTH STREET, AT FORT GEORGE.

The necessary surveys, profiles, and preliminary estimates for the regulating and grading of this avenue, the length of which is $1\frac{96}{100}$ miles, are in progress, and nearly completed.

FORCE IN THE EMPLOY OF THE DEPARTMENT.

In the organization of the force employed under the direction of this Bureau, the aim has been to perfect such methods as should secure punctuality, order, and safety, a just and equal requirement of each man and of each gang, and the utmost

precaution to prevent errors in the returns of time, and the payment of the public money to any man for a single hour's work which he has not actually and honestly given to the Department.

The force is arranged in gangs of from twenty to fifty men, and a foreman is placed over each gang.

They are placed in divisions, and over each division is placed a general foreman.

The general foremen, as well as the foreman, are responsible for the efficiency of the men under them, for the economy and manner of doing the work, and for the carrying out of the orders given by the Assistant Engineer in charge, or the Head of the Bureau.

The general foremen personally report to and receive their instructions from the Head of the Bureau each day.

In order to check, and as a security against, any discrepancy or dishonesty that might occur in marking "present" any man who was absent or not in line at roll call, the general foremen are required to count the number of men in one or more of their gangs each day, and report the same to the office.

Foremen report to and receive their instructions from their general foreman, and are responsible for an accurate return of the time wrought by each man in his gang, and to which he is required to make an affidavit at the end of each pay term of two weeks. They are also required to make a written report each day, stating the location and kind of work upon which the gang has been engaged, the time in hours expended, and

the number of men employed. Foremen are required to be upon the work constantly during work hours, unless they have a written leave of absence, or in case of sickness, for which time they are not paid.

Men are required to be in line at roll call, and if absent at first roll call are not allowed to commence work until the third roll call.

If absent from work three successive days, they cannot resume their places without a written restoration from the office; and if absent longer than one week their names are dropped from the roll, and they cannot resume work except by new appointment.

It is the duty of all officers and foremen under the direction of this Bureau to report daily all cases of neglect of duty, inefficiency, or insubordination; and any person who has any request or complaint to make, or desires to answer any charge or report against him, has opportunity by calling at the office of the Head of the Bureau between the hours of nine and ten, A. M., when his case is invariably attended to.

The present force employed under the direction of this Bureau is as follows:

Four general foremen, one in charge of the work upon the City Parks, one of masonry on Central Park, one of the Boulevard, and one of Sixth avenue, Avenue St. Nicholas, and Mount Morris square.

Fifty-five foremen on all the works of improvement.

One thousand nine hundred and fifty-eight men (which includes mechanics and teams).

THE ENGINEER CORPS.

The Engineer Corps consists at present of—

Eight Assistant Engineers ;

One Draughtsman ;

One Plane Table Surveyor ;

Seven Rodmen ;

Twenty-one Chainmen and Axmen ;

Two Inspectors.

There are also employed, in connection with this Bureau, two clerks, one acting as secretary and accountant to the Head of the Bureau, and one as office assistant, engaged in the computation of quantities and keeping the account of labor, materials, etc., and also one foreman detailed for the measurement and inspection of material, and one messenger.

The duties of the Engineer Corps in many respects are more varied than those required upon public works generally, and are of a different character.

Upon a work of such variety and detail as is under the control of the Department, besides attending to the portion governed by well-defined rules and plans of construction, much care and attention are required to carry out the instructions that apply to the work, to secure the thorough construction and finish desired, to give the necessary attention to the working operations of the force employed by the Department, and make the required inspection, measurements, and estimate of the materials furnished and work done by contract.

In the proposed plan for the organization of the Engineer Corps, reported in May last, and approved by the Board, the

main object was to perfect such an organization as would carry out the views set forth in the report of the Committee on By-laws, viz.:

"To have every employé feel the responsibility of his position, and to impress upon him the necessity for the exercise of his best personal attention and judgment in the performance of his duties."

The responsibility given, together with the selections and appointments made by the Department to fill the several positions in the corps, with those only who are competent, has furnished the Department with an efficient and effective corps of Engineers.

It affords me great pleasure and satisfaction to acknowledge the intelligent and efficient manner in which the Assistant Engineers and the members of the corps generally have discharged their duties; and to the assistants and draughtsmen great credit is due for their co-operation in advancing the work under the direction of the Department.

The co-operation of the several Bureaus has been such as to materially assist and facilitate the carrying forward of the work of the Department under the direction of this Bureau.

Respectfully submitted,

M. A. KELLOGG,

Engineer-in-Chief.

SUPPLEMENT TO

REPORT OF THE ENGINEER-IN-CHIEF.

SUPPLEMENT TO

REPORT OF THE ENGINEER-IN-CHIEF.

DEPARTMENT OF PUBLIC PARKS,
BUREAU OF CONSTRUCTION AND REPAIRS,
February 4th, 1871.

HON. HENRY HILTON,
Vice-President, D. P. P.:

SIR:—Agreeably to instructions, the following report upon the site for the Zoological and Botanical Gardens proposed to be erected upon the Central Park is herewith respectfully submitted.

THE GROUNDS FORMERLY KNOWN AS "MANHATTAN SQUARE."

The grounds selected for and upon which the former Commissioners of the Central Park had decided to locate the Gardens, and upon which work was commenced in 1868, continued during 1869, and until April last, were the grounds formerly known as "Manhattan square," situate between the Eighth and Ninth avenues and Seventy-seventh and Eighty-first streets.

It contains, exclusive of twenty feet added to the width of Seventy-seventh and Eighty-first streets each, an area of $18\frac{33}{100}$ acres, from which should be deducted the area of about $1\frac{22}{100}$ acres that will be occupied by the slopes of the avenues and

streets surrounding, and which cannot be utilized. This reduces the area that is actually available for the Gardens to $17\frac{1}{10}$ acres.

The entire surface is extremely uneven and broken, and varies in elevation from fifty-two feet to one hundred and four feet above high water; the lower portions being marshy, and in part covered with pools of stagnant water, while the higher portions are bold and rocky bluffs, mostly bare of soil and vegetation.

In order to define more clearly the broken and uneven surface of the ground, the following statement, showing the difference between the elevation of the ground adjoining the surrounding avenues and streets, and the grades of the same, is presented, together with the annexed profiles:

Commencing on the Eighth avenue, at Seventy-seventh street the surface of the ground inside the square is from thirty feet to thirty-six feet below the grade of the avenue for a distance of about six hundred feet.

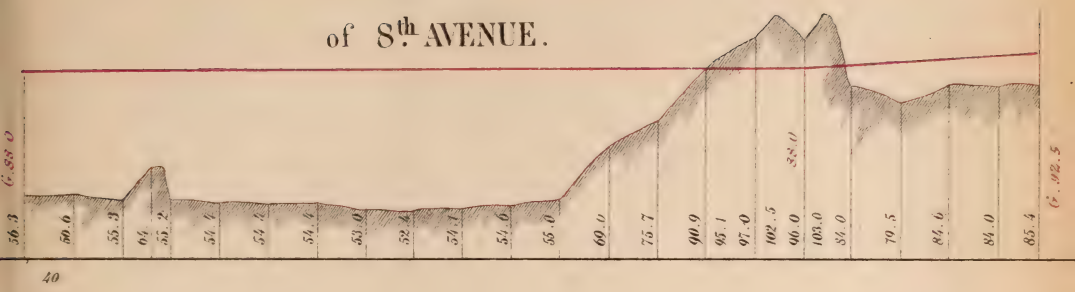
Two hundred feet farther northward the surface is fifteen feet above, and at Eighty-first street it is seven feet below, the grade.

Along Eighty-first street the surface of the ground, for a distance of about two hundred feet, is from seven feet to eleven feet below the grade, and thence westward it rapidly descends to thirty-four feet below, and then the ground rises to twenty and one-half feet above the grade at the Ninth avenue.

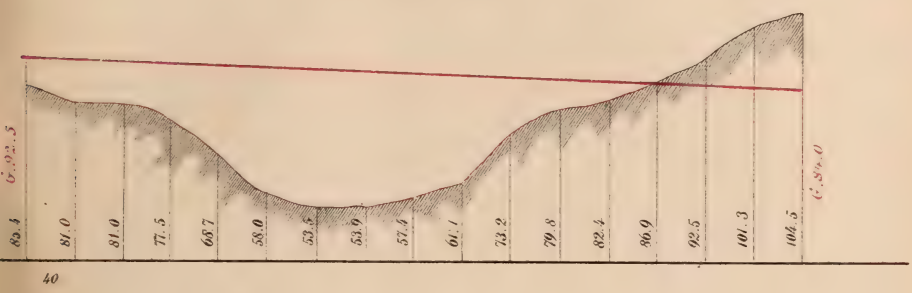
On the Ninth avenue the surface at Eighty-first street is twenty and one-half feet above the grade of the avenue, and about midway between Eighty-first and Seventy-seventh streets

PROFILES.

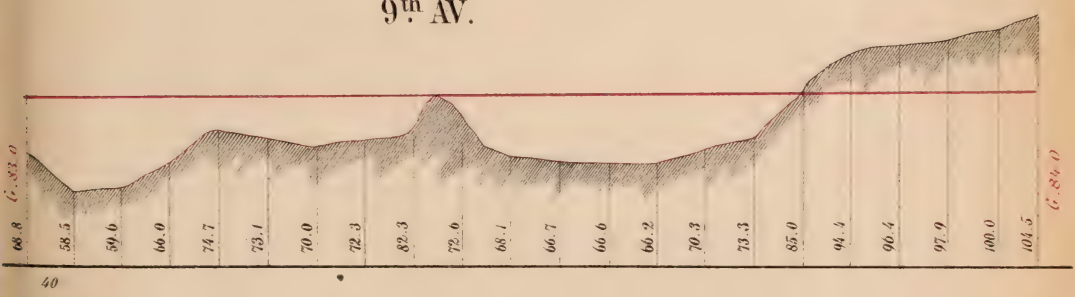
of 8th AVENUE.



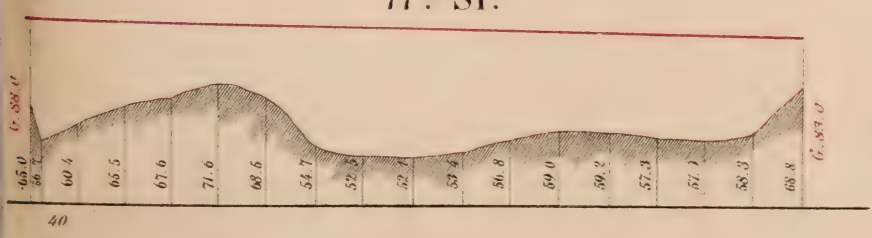
81st ST.



9th AV.



77th ST.



Scales.

H. 200 feet to 1 inch.

V. 50 feet to 1 inch.

it is seventeen feet below, and thence it rises to about the grade, and then descends to twenty-four and one-half feet below the grade of Seventy-seventh street.

Along Seventy-seventh street the surface is from twenty-four and one-half feet to thirty-three and one-half feet below the grade for a distance of five hundred feet east of Ninth avenue.

It then rises rapidly to fifteen feet below, and at Eighth avenue it is thirty-one feet below the grade of the avenue.

The surface of the interior, as will be seen by the accompanying map, is equally irregular.

DRAINAGE.

A thorough drainage of the entire area should have been made, or at least provided for, previous to any attempt at other improvements. It embraces the removal of all stagnant and standing water, and directing of all springs and surface water into proper channels, and the whole conducted off in drains constructed for the purpose.

The only provision toward this important object is a sewer of about five hundred feet in length, that has been constructed, connecting with the regular city sewer in Seventy-seventh street, which passes through Seventy-seventh street, Tenth avenue, Seventy-fifth street, Ninth avenue, and Seventy-first street to the North river.

The elevation of this sewer is considerably above the surface of the pools of water standing upon the square and the lands adjoining.

The area of the grounds which cannot be drained through this sewer, and much of which is covered with stagnant water,

is about $3\frac{3}{10}$ acres, or about one-sixth of the whole area of the square. The drainage of this area should and could have been provided for in the construction of the city sewer, if proper attention had been given to the subject.

The filling in of the area that cannot be drained will not dispose of the water, or obviate its effects.

The water falling upon the ground, perhaps at a considerable distance, passes through the surface soil until it meets a substrata, through which it cannot penetrate, and along which it will descend until it reaches the lowest point, or a point where it becomes confined, and if not drained (as in this case it cannot be, by the present system of sewerage), it will ascend by capillary attraction into the filling above, and keep the surface cold, damp, and wet, making the immediate locality and its adjacent surroundings unhealthy and unfit for the animals to be there confined.

SEWERAGE.

The system of sewers and pipes for the conduit of the surface water, the excrement from the animals, and the water used for the cleansing of the cages, dens, and buildings, should be made most thorough and complete. With the present sewers in Seventy-seventh street, before mentioned, as an outlet, this cannot be accomplished, the elevation of the flow-line of the sewer being above the elevation of about one-sixth of the whole area of the square.

In order to perfect the sewerage, as well as the system of thorough drainage, it will be necessary to construct a sewer expressly for the purpose, either passing through Seventy-ninth street and discharging into the North river, or passing under the

Topographical Map of MANHATTAN – SQUARE.

C. J. Spangenberg Del.

Eighth avenue, through "The Lake" and grounds of the Central Park, and connecting with the Seventy-fourth street sewer at the Fifth avenue.

By the Seventy-ninth street line the length would be about three thousand three hundred feet, and at the Ninth avenue it would be thirty feet below the grade of the avenue, and about twenty feet under the grade of the Boulevard at the point of crossing.

These grounds, for the location and site for a Zoological Garden, are very objectionable and unsuitable.

The area is inadequate and insufficient, and is not susceptible of being enlarged or extended.

The topographical formation is such as not only to make the proper regulating and grading of them extra costly and expensive, but also the want of, and facility for, the complete and ample means of drainage and sewerage by the present outlet will require an enormous expenditure to perfect the same.

The great depression of a large portion of the area below the grades of the surrounding avenues and streets, and more especially after buildings are erected upon the adjoining property, will prevent a free circulation of the air, and the offensive odor arising from the animals will accumulate, and render the grounds and their surroundings unfit for habitation, and unhealthy, and consequently depreciate the value of the surrounding property.

The location being so far to the west side of the island does not suit the public convenience, access thereto by the street cars being confined to the lines passing up on the west side of the city only, and to reach it by carriages would necessitate their passage for several blocks through an avenue one half of which is occupied by railroad tracks.

Its isolation and distance from any grounds within the Central Park that can be made available for a Botanical Garden, Arboretum, Herbarium, etc. (all of which offer to the visitor so much agreeable entertainment, as well as being a valuable source of instruction), are very detrimental.

The location of the Garden upon these grounds was apparently considered very questionable by the former Commissioners of the Central Park, as the following Report, made by them December 31st, 1866, evidently shows:

"The establishment of Zoological Gardens in the Park has long been the subject of attention, and plans are now so far complete as to warrant the expectation of an early commencement of the work of improving the grounds upon which they are to be established.

"The considerations of public convenience and of future economy in their management give great importance to the question of their location. Circumstances seem to point to that part of the Park lying west of the Eighth avenue as a favorable site; but it is not without its disadvantages, a principal objection being that its area is scarcely sufficient for the full extent of the future development of the Gardens.

"To render such an establishment unobjectionable to the neighborhood and agreeable to visitors, and to preserve the life of the various creatures that are to make it a home, it is of the first importance that the most ample conveniences be provided for draining the ground, and for constant cleanliness in every department. Any measures that are taken towards securing these requisites, short of the very best known methods, are certain to result either in finally increased expenditures or in the abandonment of the whole enterprise.

"The experience in these respects of European Gardens ought to be made useful in the outset of our own.

"Without the provision of these essential preliminaries, the Gardens can not be successful. With them the greatest care and intelligent supervision will be required to give the Gardens the character that is desired.

"The extremes of our climate are such as will require continued circumspection to preserve in health the tender and delicate animals of the tropics, and the more robust organizations adapted to the frigid zones."

"THE MEADOWS" ON THE CENTRAL PARK.

These grounds for the proposed site for the Zoological and Botanical Gardens are undoubtedly the most suitable, if not the only grounds under the control of the Department that are adapted for the purpose.

They are situated on the Central Park, north of the Transverse Road crossing at Ninety-seventh street, and surrounded on the east, north, and west by the drives, Ride, and walks, and at no point within five hundred feet of either the Fifth or Eighth avenues.

The area between the Transverse Road and the Ride is nearly forty-eight acres, which may be easily enlarged, when necessity requires, by the addition of the ground on the south of the Transverse Road and bounded by the Ride, containing an area of twenty-three acres, connection therewith being easily formed by bridges over the Transverse Road at such points as may be necessary.

The present surface of the grounds is such as will require but little, if any, regulating and grading, the same having been done in the construction of the Park.

The sub-drainage of the whole area on both-sides of the Transverse Road was made previous to the finishing of the grounds, and a complete system of drains, pipes, and sewers constructed to collect and conduct water into the Lakes.

With the city sewer already constructed in the Fifth avenue as an outlet, no difficulty exists in connecting therewith a most perfect system of sewerage, the elevation of the grounds and the grading of the same being favorable to its accomplishment.

The location in regard to elevation and openness of the grounds is such, in connection with its surroundings, as will afford a free circulation of air, which, together with the plantations between the Drive and Ride, and covering the more elevated central grounds to absorb, cannot fail to carry off and

overcome the offensive odors arising from the animals, thereby preserving their lives, and rendering the Gardens agreeable to visitors and unobjectionable to persons using the surrounding Ride or Drives, and cannot affect or depreciate the value of property adjacent to the Park in that vicinity.

The present belt of shrubbery surrounding the grounds together with the interior plantations, will also, to a great extent, shield the buildings from the extremes of the climate; and, being low in height and unobtrusive, will also be barely shown from the surrounding Drive, thereby retaining so far as practicable the present outlines and features of the landscape.

The location for public convenience and access, being central between the avenues exterior to the Park, is such as will afford all classes a pleasant and easy means of approach, ample and inexpensive facilities being furnished by the various lines of city cars passing on either side of the Park, while the Park Drives and walks in the direction of the Meadows render to visitors safe as well as pleasant and agreeable access and accommodations.

In connection with these grounds, and separated by the East Drive only, are grounds originally designed and well adapted for the location of an Arboretum, comprising an area of about forty acres.

Within this area are the Mount St. Vincent buildings, and by the removal of the frame buildings the large brick Chapel building could be utilized for an Herbarium and Library.

The area between the West Drive and the Eighth avenue, and Ninety-seventh street and the Pool, containing about ten acres, would be very appropriate for the collection of evergreen

specimens. It is, therefore, my opinion that when, in the progress of the city and the population around the Park, it shall become advisable to establish a Zoological Garden on a large and scientific scale, these grounds on account of their general advantages, the public convenience, facility of access, and their extent, are without doubt the best suited for the location of the Gardens, and will offer greater attractions and more agreeable entertainment to the visitor, and will afford the student much more instruction and information than any other grounds within or connected with the Central Park.

Very respectfully submitted,

M. A. KELLOGG,
Engineer-in-Chief.

REPORT

OF THE

LANDSCAPE GARDENER.

REPORT OF THE LANDSCAPE GARDENER.

DEPARTMENT OF PUBLIC PARKS,
BUREAU OF LANDSCAPE GARDENING,
April 20th, 1871.

HON. PETER B. SWEENY,

President of the Department of Public Parks:

SIR:—I have the honor to submit herewith the First Annual Report of the operations of this Bureau from the date of its or anization up to and including the twentieth day of April, 1871.

Much that was done under the direction of Mr. Ignatz A. Pilat, the former Chief Landscape Gardener, who died on the 17th of September, 1870, can not here be competently shown. It may, however, be proper to state that previous to his death preliminary planting sketches of most of the Parks under improvement had been completed, and much of the work had progressed.

The continuation of the work by the subsequently-organized working force of this Bureau has been carried on in accordance with the general plans already approved, and under the instructions of the Executive Committee and the Vice-President.

The following are the details of the work:

BATTERY PARK.

Considerable preliminary work, such as the cutting out of dead branches and trees, and other pruning, was carried on during last summer and fall, and completed this year.

The surface shaping was conducted late in the fall.

The planting which was done during the winter and this spring is designed to conceal the busy thoroughfares around the Park, give plenty of shade, present attractive flowers and various-hued plants, and present the most satisfactory views of the Bay and Harbor.

The shade-tree planting on the exterior walk has been nearly completed.

The plots are being edged with sod procured from the lines of new walks in Reservoir square, and the interior portions have been sown with grass.

Within the enclosure of the Castle Garden some evergreens in tubs have been placed, and the preparation of flower beds is in progress.

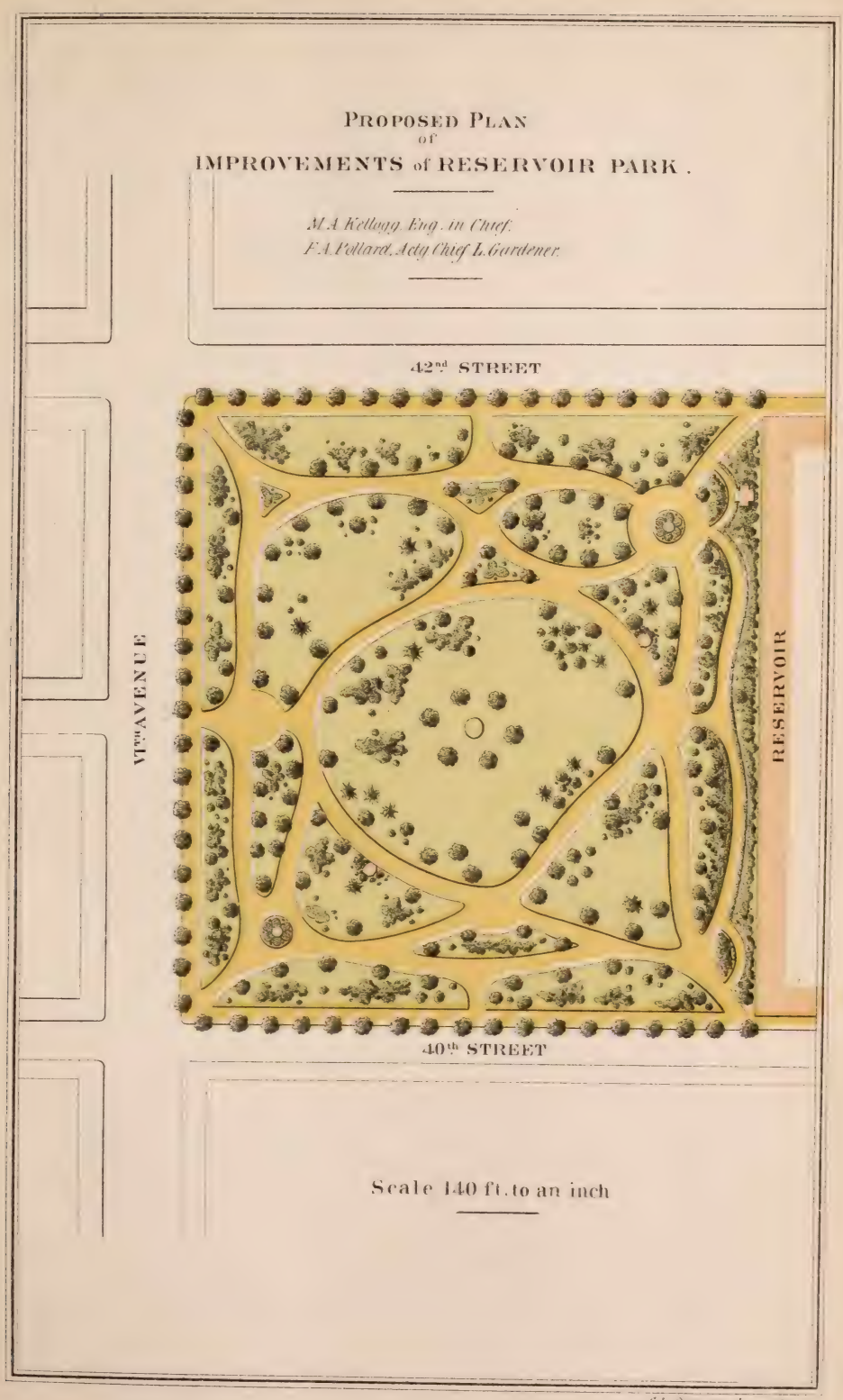
Little now remains to be done except the planting of the southeast portion, in the vicinity of the Staten Island Ferry.

BOWLING GREEN.

The shaping of this ground was completed during the summer, and grass sown in the fall.

The decayed trees have been removed and the rest pruned.

A few evergreens and deciduous trees and shrubs have been planted, and the narrow strip encircling the fountain filled with bulbs, which are to be replaced by summer flowering and foliage plants.



C.L. Spangenberg, Del

CITY HALL PARK.

The work in this Park was commenced in May, 1870. The portion north of the Old City Hall was brought into shape and the new planting finished before the close of the year.

Flower beds have been placed around the fountain at the northwest corner, and filled with bulbs, to be replaced by foliage and other bedding plants.

Some old and partially decayed trees have been removed, and several others, after being relieved of a large quantity of dead wood and decaying branches, are retained for present purposes of shade, until the growth of the newly-planted trees may render them unnecessary.

A line of shade trees has been planted on the sidewalk and enclosed with iron tree-guards.

A hedge of privet, obtained from Union square, has been planted as a screen for unsightly faces of old buildings.

The shaping of the ground south of the Old City Hall was finished this spring.

The plots are bordered with shade trees and edged with sod sent from the Reservoir square, and the interior is sown with grass.

DUANE STREET PARK.

This small triangular piece of ground was renovated during the summer, and planted with a few shrubs, and sown with grass seed late in the fall.

The exterior walk has been planted with shade trees protected by iron tree-guards.

BEACH STREET PARK.

The ungainly ailanthus trees which encumbered this small triangle were removed during the summer.

A line of shade trees has been planted on the exterior walk, and iron tree-guards placed around them. In the interior a few shrubs have been planted and grass seed sown.

CANAL STREET PARK.

This piece of waste ground was brought under cultivation during the summer and early fall.

The trees on the sidewalk were planted in November, and iron tree-guards placed around them.

During the fall and winter season shrubs and evergreens were planted within the enclosure. Ornamental flower beds were also arranged, and filled with spring flowering bulbs, which will be replaced by bedding and foliage plants.

WASHINGTON SQUARE.

The plans of the walks and roads in this Park having been approved and ordered to be carried out on July 2d, 1870, the preliminary treatment of the ground was proceeded with.

During the fall and winter the old trees, which had been much neglected, were relieved of their dead wood and decaying branches by lopping them off close to the trunk or to some leading shoot, so that no unsightly spurs that could never be reclothed with foliage nor add to the beauty of the tree should remain.

Around the borders of the square, large, widely-spreading trees were growing in three distinct lines, twenty feet apart.

A large number of them, being unsound, were cut down, to permit the full development of neighboring trees of a more desirable and healthy character.

The trees along the diagonal and rectangular walks were treated in like manner.

Many of the trees along the curb of the exterior sidewalk, being either dead or much decayed, and in danger of being blown down, were removed.

Within the lines of the projected roadways across the square sixty-nine trees were standing, of which only three were transplanted; the remainder, being too large, and mostly decayed or diseased, were cut down.

Some of the stumps dug out, having much-branched and gnarled roots, were placed, root end up, in the large wire cage at the Museum building in the Central Park, to serve as perches for the eagles.

Planted between the large trees were found many young trees, which, during the fall, were carefully taken up and "heeled in." Some have since been used at the Battery and Tompkins square, and the remainder sent to the Nursery in the Central Park.

The planting map, as now approved, provides for lines of shade trees around the exterior sidewalk, along the outer edge of the walks bordering the road crossings, and on both sides of the diagonal walks; also for a sufficient number of irregularly planted shade trees near the winding walks.

In carrying out this plan it is intended to utilize such of the original trees as are of a suitable and healthy nature, and gradually substitute better trees for the undesirable ones which are at present retained on account of their much-needed shade. Around the symmetrically arranged entrances, at the four corners of the square, flower beds of appropriate form are designed.

The ground is now being brought into shape, and the planting will be proceeded with as the season offers.

ABINGDON SQUARE.

Some of the old and poorly-grown shrubbery has been removed, the gaps filled with a few shrubs, the plants thinned, and ground cultivated.

CHRISTOPHER STREET PARK.

This triangular Park, at the intersection of Fourth street, Grove street, and Christopher street, has been cultivated and treated similarly to the last.

COOPER INSTITUTE PARK.

The privet hedge around the border, which tended to obstruct the view of the interior, has been removed, as also some old and neglected shrubbery.

The narrow border path has been dug up, and the ground brought into shape.

During the winter, evergreen trees were planted so as to shield the approaches to the urinal which is situated at the entrance, and a few flowering shrubs and herbaceous plants as a foreground to the evergreens.

The silver poplars on the sidewalk have been trimmed, but are so crooked and irregular that a substitution of more symmetrical trees is intended.

The old sod was used in the Battery Park.

TOMPKINS SQUARE.

This ground was brought into shape during October, and two lines of shade trees were planted along the path skirting the interior. Shade trees have also been planted along the exterior sidewalk, and iron tree-guards set.

The two urinals have been closed in with evergreens.

The border and sidewalks were occupied by unsound plane trees, silver poplars, and ailanthus, many of which have been cut down, and the remainder kept for the shade which will be needed until the newly planted lines of trees shall have attained a sufficient size.

UNION SQUARE.

A large number of trees on this square, being either dead or very much decayed, were cut down, and the remainder relieved of a quantity of dead and intersecting branches. A number of dead evergreens were also removed.

The privet hedge around the border has been removed The best specimens were selected from it and planted in the City Hall Park.

Some young and undeveloped trees that had been planted between the older ones were removed to the Nursery in the Central Park.

MADISON SQUARE.

During the summer a large quantity of dead wood was removed from the old trees, and last fall and this spring all intersecting branches and those obstructing the pathways were cut off.

The shrubbery has been thoroughly pruned.

Some ornamental plants have been placed within the enclosure of Worth Monument.

STUYVESANT PARK.

The trees here bore evidence of long neglect, many of the finer specimens and rarer sorts being crowded out and crippled in their growth by overgrown and unsound trees.

A careful and thorough pruning and thinning out has been carried on during the fall and early spring; the shrubs have also been pruned, and the ground cultivated.

Almost all the trees on the sidewalks are ailanthus, many of which being unsound, and of the kind emitting a generally disagreeable odor when in flower, have been cut down.

SIXTH AVENUE PARKS.

These two triangular pieces of ground, at the intersection of Broadway and Sixth avenue, were brought into shape last spring.

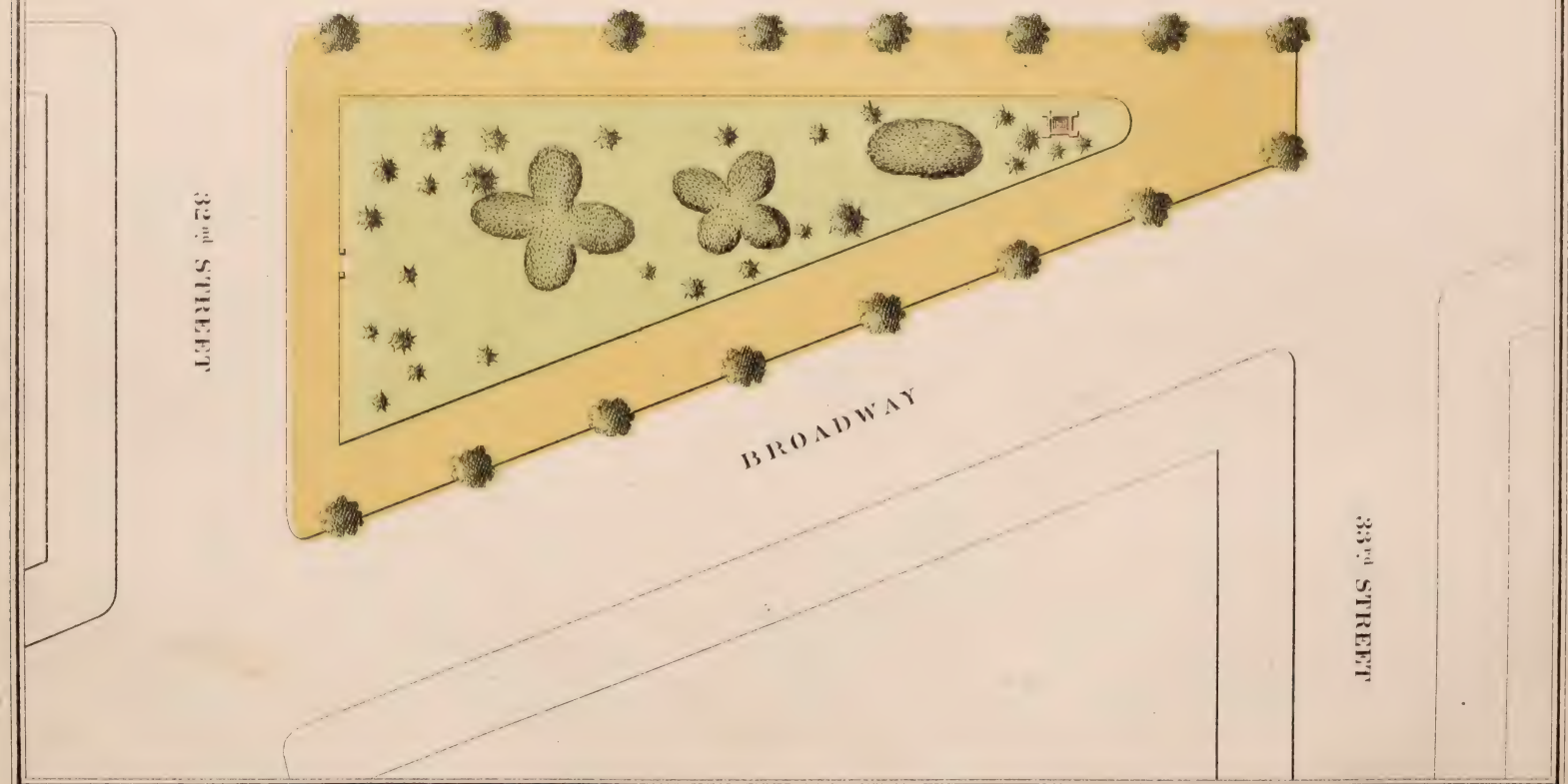
Small evergreen trees were planted, and flower-beds arranged and filled with herbaceous plants during the summer.

In the fall the herbaceous plants were removed and bulbs substituted. A few deciduous trees were planted on the sidewalk, no continuous line being possible because of the ledges of rock at the surface.

PLAN
of
IMPROVEMENTS of VIth AVENUE PARKS, No 1.

M. A. Kellogg Eng.r in Chief. L. A. Pilat Chief Gardener.

Scale 40 ft. to an inch.



G. L. Spangenberg. Del.

During the winter some larches and pine trees were planted to relieve the monotony of the view, and afford harbor for the birds. The ground has also been sown with grass.

RESERVOIR SQUARE.

The trees and shrubs in this square are all of a very good character, and may be made use of in the new planting.

The plants have all been carefully and thoroughly pruned.

The trees standing within the new lines of walks, as staked out by the engineers, have been dug up and heeled in for future use, and the sod has been sent to the City Hall Park and Battery.

PARK AVENUE PARKS.

The plants in this succession of six equal oblong enclosures in the centre of the avenue, extending from Thirty-fourth street to Fortieth street, and separated by the crossing of the intermediate streets, were found much neglected and unsightly.

An attempt was made to repair this defect by the introduction of a few herbaceous plants in pots.

Before this work was finished a plan was adopted to afford light and air to the railroad tunnel beneath, by means of five large apertures in each Park.

The plants were therefore all removed in the month of July, some of them being sent to the Sixth Avenue Park, and the remainder to Mount Morris square.

In consequence of this change three new plans were prepared, one for the two centre Parks, one for the two intermediate Parks, and the other for those at the ends, the general

design being to hide the apertures by means of evergreens, shrubs, and vines, and arrange ornamental beds and groups of foliage and herbaceous flowering plants.

MOUNT MORRIS SQUARE.

During the spring of 1870 the following operations were conducted :

The arrangement of the entrances at the four corners; the ground shaping on the north, east, and west sides; the laying out of paths around the borders of the high hill; the preparation of the lawns at its base, and the construction of the main path ascending from the northern Fifth avenue entrance.

A few evergreen and deciduous trees, and shrubs, and beds of herbaceous plants were also set out.

The design of Mr. Pilat, thus far carried out, was, after his death, continued with few variations during the season.

The noble forest trees covering the bluff have been retained, excepting a few that were unsound and detrimental to the future development of the others.

Shade trees have been planted along the curb line of the exterior sidewalk on the northern, eastern, and western sides. These have been temporarily protected.

The new planting was commenced in the month of October, and the ground work or main portion, consisting of evergreens, was completed during the fall and winter.

In each corner of the square beds were planted with bulbs, which will be replaced by bedding plants as soon as the weather permits.

PARK-AVENUE PARKS.

Sketch of the general plan of planting.

10 Feet 1 inch. Design Rob Demicher

HIGH BRIDGE PARK.

A botanical survey is being made preparatory to the improvements designed for this Park.

Many seedlings of native kalmias and junipers, and sods of mosses and ferns, have already been collected and transplanted to the Nursery in Central Park.

MORNINGSIDE PARK.

The few plants existing on this barren piece of ground are being located on the topographical survey preparatory to the plan of improvement. A quantity of grass sod was removed for use in Mount Morris square.

CENTRAL PARK.

During the spring and summer of 1870 the usual care and cultivation of plants was attended to.

In the month of August a careful examination was made of the condition of the trees and shrubs throughout the Park. It was found that in many of the clumps which had been thickly planted, in order to produce an immediate effect, the trees were crowding and interfering with each other to such an extent that many would soon be killed or reduced to mere masts, as is the case in all undisturbed plantations and forests, by the plants of sturdier growth and more fortunate location.

A large number of trees, such as the horse-chestnut and linden, whose growth is symmetrical, were crowded amid thickets of loose-growing and irregularly shaped trees.

It was deemed advisable to prevent this waste of good plants by transplanting those that would be useful in other portions of

our work, and give the remainder opportunity to furnish themselves to the fullest extent and produce the required effect.

Accordingly, a large number of evergreen and deciduous trees were transplanted during the winter, when the roots were less liable to be disturbed, and in order that the ground about the clumps whence they were removed might be cultivated and turned into grass before the growing season should begin.

The native growth of young trees in the upper portions of the Park, beyond Eighty-sixth street, composed mainly of oak, hickory, and chestnut, was much clogged with catbriars, brambles, deeply headed in, old plants of Carpinus Americana, Viburnum dentatum and prunifolium, Cornus florida and alternifolia, and other plants, which not only presented an unsightly appearance, but aided to form a dense and impenetrable thicket.

Having received instructions in the fall to reform the present planting so as to provide extensive views wherever desirable, thin out the trees so as to allow for the fuller development of the others and permit the circulation of air and growth of grass, the work of clearing out was actively conducted.

A large portion of this land has already been grubbed up, cleared of stone and rubbish, and thrown into grass.

In this work of thinning out care has been taken to preserve and bring into prominence the clusters of white birch, beech, and tulip trees interspersed through the woods, and also to open views of water surfaces, and other objects of interest.

In compliance with the instructions of your Executive Committee, directing the planting of shade trees along the walks and

drives, a large number of suitable standard trees have been removed from places where they were not required, and planted in appropriate locations.

This very requisite planting will be resumed in the proper season, and according to the plans now being matured.

Many of the trees previously planted along the drives were furnished with branches at from four to eight feet from the ground, and projecting over the road; these branches have been removed.

The double line of American elms on the Fifth avenue sidewalk, previously planted, from Fifty-ninth street to Sixty-fifth street, has been continued to Eighty-fifth street, and beyond that point up to Ninetieth street; tree holes are now being prepared for the further continuation of the line. The trees planted some years ago were headed in at the height of ten feet, and in a short time they formed clusters or fascicles of strong shoots at the head, and also many very low and deflected branches. These low branches, which obstructed the view, have been removed, and the growth of the head directed into the leading branches by cutting out the others, so as to shade and overhang the sidewalk at the proper height more quickly.

Iron tree-guards have been placed around the trees at the Eighth Avenue Circle, along Fifty-ninth street, and on Fifth avenue from Fifty-ninth street to Seventy-second street.

The American elms forming the double line on each side of the Mall were encumbered with many low branches quite unconnected with those forming the spreading tops. Many of these have been cut off where they interfered with the desired growth and symmetry of the tree. The heads were crowded

with small attenuated branches, which during the growing season are frequently broken by the wind; these have been carefully removed.

No definite map, showing the existing plants on this Park, having heretofore been made, preparations were begun during the fall to obtain this much-needed information for the further development and improvement of the unfinished portions of the Park.

All other operations are specified as follows:

The ground has been brought into shape, and the planting completed around the Carrousel, the new Animal House, and Museum, and also along the new walk connecting the Museum with the walk running parallel with the East Drive.

The large hill at Seventy-second street and West Drive, and the smaller one north of Transverse Road No. 2, just west of the East Drive, have been planted with evergreen and deciduous trees.

Ornamental flower-beds have been arranged at the north end of the Esplanade.

The Maze, east of the Old Reservoir, has been replenished with hedge plants.

To prepare the way for the widening of the East Drive, from Transverse Road No. 2 to Transverse Road No. 4, the plants therein included have been removed, and the sycamore maples on the east side of the straight portion of this Drive, east of the Croton Reservoir, have been moved back the proper distance. Several of these, that were poorly grown and greatly injured, have been removed and better ones substituted. On most of

these trees were large branches, five to seven feet from the ground, which extended horizontally over and obstructed the drive, and also tended to retard the ascending growth of the upper branches which should form a high shading arch. Besides these, there were many close clusters of ascending branches, one-quarter to one-half inch in diameter, starting from the base of leading branches that had previously been cut off. The branches on the side fronting the road had formerly been removed close to the trunk, so that in many cases those in the rear had pushed forward to the light, and in some cases rolled over each other, thus presenting awkward twists and shoulders. The obstructing and clustered branches have been thinned out as far as possible during the past season. The trunks of several of these trees have been badly scarred in former years by the contact of wagon wheels. An edging of iron a few inches in height along the curb line of the Drive is being designed to prevent similar injury in the future.

The reshaping of the ground east of the Drive, rendered necessary by this widening of the straight portion, is now nearly completed, and a new plan of planting is being proceeded with.

West of the West Drive, and bordering the Eighth avenue, the grade of which has been raised, most of the trees have been removed preparatory to the reshaping and replanting of the ground.

A new propagating house, fifty feet by eighteen feet, span-roofed, was put up in November; one hundred feet of cold frames are also completed. The interior of the old Conservatory has been temporarily arranged with shelving to accommodate the large number of bedding plants required for the adornment of the Parks now completed. The three propagating

houses are independently heated, insufficient in size, and necessitate a great deal of shifting. A new plan is now being prepared for the construction of larger and more economical propagating houses, green-houses, cold-frames, etc., all connected together in one system.

The old Nursery at the northeast corner of the Park has been enlarged for the care and cultivation of the large number of plants which will be required for future operations.

Beds of bulbs, which are now in full bloom, were extensively laid out in various conspicuous portions of the Park.

According to your official instructions, and the arrangements made with the Cooper Union, we commenced in November to furnish the School of Design for Women with a weekly supply of leaves, twigs, flowers, and fruits, as models for the drawing classes. The Normal College is also being supplied with specimens for the illustration of their course of botanical studies.

Botanical specimens from the conservatory and open ground have been collected and incorporated with the Herbarium, and a few additions to the collection have been received from other sources. A list of the great variety of plants growing on the Central Park is now being prepared, and will be numbered to correspond with labels affixed to the specimen plants of each kind.

On the 9th of January, an account of stock was taken of the plants in the Nursery and propagating houses, and also on the 20th of April, of which the following is a statement:

Trees and Shrubs in Nursery Jan. 9th	9,380	
" " transplanted from Central Park and other places and stock increased by "division"	10,560	
		19,940
Cuttings in Nursery Jan. 9th	5,000	
" added	19,918	
		24,918
Herbaceous plants in propagating houses Jan. 9th	8,650	
" " propagated	22,101	
		30,751
Annual plants		12,500
Total number on hand		88,109

Three hundred and thirty-six shade trees have been planted in the vicinity of the drives and walks, and four hundred and sixty-seven trees and shrubs have been planted in other places on the Central Park.

Six thousand eight hundred and seventy-six trees, shrubs, and vines, of which eleven hundred and twenty-six were purchased, were planted in the various other Parks

Thirty-eight thousand and fifty bulbs and herbaceous plants were distributed among all the Parks.

The designs for planting the various Parks are attached to the Report of the Engineer-in-Chief.

In conclusion, I consider it just to state, that the assistants who have been placed under my direction, and the working force, have been most efficient and energetic in the discharge of their several duties.

Respectfully submitted,

FRANK A. POLLARD,

Act'g Chief Landscape Gardener.

REPORT

OF THE

SUPERINTENDENT OF THE CENTRAL PARK.

REPORT OF THE SUPERINTENDENT OF THE CENTRAL PARK.

Hon. Peter B. Sweeny, President of the Board of Commissioners of the Department of Public Parks:

SIR:—I present my report of the transactions of the Bureau of Central Park, including Mount Morris square, for the year.

When I took charge of this Bureau, in April last, I found, upon inspection, that there was much to be done to put the Drives, Rides, and Walks in a state of what I considered complete repair.

On the Drives, in many places, the stone had worked up to the surface, making them rough. These had to be removed. The gutters required raising, there being too much crown in the roadway, and throughout they required a surface coating of gravel; this was at once proceeded with, and during the season accomplished.

The Bridle Road, which had been sadly neglected, was thoroughly overhauled.

The Walks also needed much attention. On the declivities it was found impossible to keep them in good order without much labor and expense, as each heavy rain would wash off much of the gravel, and gully them out, leaving them in bad

condition; to remedy this difficulty, many of the walks in the Ramble and southern division of the Park were supplied with a coating of the Fisk asphalt and gravel pavement; this has served a good purpose thus far, but its permanent utility is to be proved by time.

The Fifth avenue walk has been coated with the same kind of pavement from Fifty-ninth to Seventy-ninth street.

The Esplanade at the Terrace has been covered with the Scharf pavement.

A new walk has been constructed from the Museum, in a southwesterly direction, to the Drive. This was very necessary, and gives much easier access from portions of the Park to the Museum and its surroundings.

The widening of the East Drive was commenced late in the fall of 1870; work on it was necessarily suspended during the winter, but it has been pushed with vigor thus far during the spring, and will be completed from Seventy-eighth street to St. Vincent at an early day. It will be a great relief to those visiting the Park in carriages.

The Croton water pipes on the Park have been a source of constant trouble and annoyance. Owing to their imperfect nature, leaks have occurred very frequently, requiring much time and labor to repair them.

The Zoological Collection, having been removed from the Museum building, has been provided with much more comfortable and appropriate quarters, in a series of new buildings that have been built surrounding the Museum.

THE AVIARY.

The Boat service is yet under the supervision of Thomas S. Dick; he has had during the past season thirty-four boats in use on the Lake; they have been fully patronized by the visitors, thus proving that the public are satisfied with the endeavors of the Department to promote their enjoyment in this direction as well as otherwise.

Ten Park Carriages, capable of seating twelve persons each, have been in use for the accommodation of visitors during the year, starting from the Fifth and Eighth avenue gates every ten to fifteen minutes, ordinarily, but at a little longer interval when the weather was unpleasant. They have been well patronized, and appear to be fully appreciated.

The Goat Carriages are still a feature on the Mall, adding much to the enjoyment of the children.

A Carrousel has been added to the other sources of amusement for children. It is located near the Play Ground and Swings, and unquestionably adds much to the pleasure of the juvenile visitors.

The Ball Grounds have been thronged by players on the days set apart for that sport. No flagging of interest was perceptible. The total number of players during the year was sixty-six thousand five hundred; the greatest number any one day was June 4th, when three thousand players were present.

Croquet playing has been gradually coming into favor as one of the sources of amusement and exercise on the Park, many during the year having availed themselves of the privileges here presented, our Commissioners having, I think wisely, granted permission to extend the permits so as to allow gentlemen and ladies or boys and girls to play together.

The Saturday Concerts have been kept up during that portion of the season appropriate therefor, and have been well attended.

The Band consisted of a leader and forty musicians, performing selections from some of our most eminent musical composers, thereby affording a great pleasure to those desiring classical music, and also being a great source of enjoyment to the multitude that attend.

Skating was enjoyed to its fullest extent during the winter, the ice being unusually fine during the whole skating season, which commenced on the 26th December, and lasted, with very slight intermissions, until the 23d of February, there being during that time forty-eight days of skating.

The Curlers also engaged in their favorite pastime with great zest during the season, the Park ice proving to them and their friends a source of great pleasure. They never allowed a day to pass during the season (the ice permitting) but they could be seen wending their way with their heavy curling stones to the Lake, eager to commence the day's sport.

Much has been done during the year in building and advancing the construction of the various buildings and structures on the Park, of which the following is a brief abstract:

THE TERRACE.

The tile ceiling and stained glass skylight have been completed.

THE ESPLANADE FOUNTAIN.

The basin of this structure was imperfect and leaky. A Portland cement composition lining has been put into it, which

seems to remedy the defect. A portion of the stone work in the centre, forming a foundation for the upper basin and figures, has been put in.

The Horse Fountain at the Circle has been completed and is in use.

THE CONSERVATORY.

The excavations have been completed, and much of the foundation walls built.

THE BELVEDERE.

Much work of a very fine class has been done on this structure; it is being pushed forward rapidly, and can easily be completed this season.

THE DAIRY

Has been completed, and is now being fitted up for a Restaurant, retaining in some degree the dairy feature.

THE STABLES

Have been completed, and are now in use.

A keeper's house in connection therewith is in progress of construction.

THE SHEEPFOLD.

This structure, one much needed, was commenced during the last summer, has been driven on with considerable vigor, and will be completed within the next two months.

THE MUSEUM BUILDING.

This building has undergone an entire change; the animals have been removed into new buildings outside.

The basement has been fitted up for a Park-keeper's station, tool-room for the Property-clerk, etc.

The first floor has been nicely fitted up for offices at either end, with a gallery for statuary, flowers, etc., in the centre.

The second and third floors have been completely remodeled —very handsomely fitted up with new cases for the American Museum of Natural History.

The fourth floor has also been refitted throughout, and is mainly used by the Meteorological Department.

Outside, what was an old building of discolored brickwork, with vines and iron fastenings here and there, now is a fine structure, tastefully painted, surrounded by a series of neat structures for birds and animals, forming a group both useful and ornamental.

HOUSES FOR THE ZOOLOGICAL COLLECTION.

A series of buildings near and almost surrounding the Museum have been built for the accommodation of the birds, animals, etc. They are neat and pleasing in their architectural proportions, have been tastefully painted, and fitted up with appropriate cages.

THE PALŒOZOIC MUSEUM.

Work on this building has been discontinued, and the site is being filled up, and put in shape for planting.

The many buildings that have been built and are in progress have been, and are, furnishing employment for a large force of carpenters, painters, stone-cutters, and masons. To all these mechanics, and to the men in charge of all the various classes of workmen, much credit is due for the manner in which the work has been pushed forward.

THE MENAGERIE BUILDING.

Improvements have been made on the Park in pruning and thinning out the shrubbery and underbrush. This was much needed at various points, especially at turns in the drive, where in many places it was impossible to see an approaching carriage, also in opening up views to the lakes and water-courses.

The manner of treating the lawns is as follows, viz.:

A top dressing of manure is applied in early spring; as soon as the frost is out of the ground, and the grass begins to start, they are thoroughly raked, so as to distribute it over the whole surface. After the ground has settled, the rollers are put on; they are well rolled to take out the inequalities produced by the frost. When the grass gets up three or four inches, the lawn mowers are set at work as often as is necessary to keep the grass short and even, thus producing a most perfect lawn.

It will be borne in mind that to Central Park is due much of the beauty that has been given to the various city parks, as many thousands of trees and shrubs have been taken from it that are now enriching and beautifying them. These could well be spared, but at the same time it is but just it should have full share of the credit.

The records of my office, as now kept, show the names of all men of all classes that are sent to me for employment, the wards in which they reside, the work where they are sent, the name of the foreman to whose gang they are assigned; also the time made by all the various classes of men in my Bureau, and the amounts due them therefor. From these records, I can at any time during the year furnish statistics showing all of the facts above enumerated; the keeping of these records has kept my clerical force well and efficiently employed.

In assigning men to work, they are sent as near as possible to their residences, thus keeping the work on the several parks and squares as closely confined as is possible or practicable to the working class of the several wards around them.

I have been very materially aided in my office duties by the efficient services of Mr. J. O. Bertholf, my chief clerk, to whom, and others assisting him, much credit is due.

MOUNT MORRIS SQUARE.

The improvements on this square, which had been commenced by the late Board of Commissioners of the Central Park, have been carried on, extended, and elaborated, under the orders of the Department of Public Parks, in accordance with designs of the late Ignaz A. Pilat, Chief Landscape Gardener of the Department.

Much work has been done on this square during the year.

The old unsightly house on the hill has been removed, and the grounds leveled off around where it stood ; this will be a good location for a music stand at some future day.

A circuitous walk takes the place of the old road from the north to the top of the hill, making it easy of access.

Many other new walks have been laid out and constructed, especially in the southeast and southwest portions.

The lawns have been regraded, seeded, and planted, adding much to their beauty.

It was found necessary to take out a considerable quantity of rock in order to finish the south end and make a suitable

entrance on Fifth avenue and One Hundred and Twentieth street; nearly all of this has been done, and has added largely to the expense incurred during the year.

This square is the pleasure ground of this part of the city, and may be made, without a large additional outlay, one of our finest Parks. It is visited by large numbers of the residents of this section, and others, who seem to be well pleased with what is being done for them by the Department.

Concerts were held here once a week during the past summer, and were well attended.

I would say, in conclusion, that Central Park and Mount Morris were never in a better condition than at the present time.

I have an efficient Assistant Superintendent, and a first-class corps of foremen and workmen. Each foreman of maintenance has a special division assigned to him; he is required to keep it in good order, and is held responsible for the working of the force under him and the condition of his division. The several foremen vie with each other, and a constant good-natured strife is kept up between them, to see which will keep his division in the best order.

The men are many of them skilled workmen, who have for years worked on the Park, and have been specially educated for the duties assigned them, and, as such, should receive the consideration of the Department.

Central Park is daily proving itself to be a necessity as well as a blessing to all classes, to the rich and the poor alike; each enjoy its pure air and inhale the perfume of its flowers. It is common property to those who ride in their carriages or those

upon its walks; at the same time all feel perfectly safe within its borders, whether on its drives, in the shady Ramble, or on its most public or least frequented walks.

They may enjoy a ride in its Park carriages, or in its boats on the Lake.

They may take exercise or recreation on its Ball or Croquet grounds in summer, or on its skating and curling ponds in winter.

And they may attend its concerts, or visit its Museum, Statuary Gallery, Conservatory, and Zoological Collection, without charge or unnecessary restriction.

In fact, every year's experience shows the high estimation in which it is held by all classes of citizens who visit it, from every part of the world.

Respectfully submitted,

B. F. CRANE,

Superintendent.

THE TEMPORARY HOUSE FOR MONKEYS AND BIRDS.

REPORT OF THE CHIEF ENGINEER

OF THE BUREAU OF

CIVIL AND TOPOGRAPHICAL ENGINEERING.

REPORT OF THE CHIEF ENGINEER

OF THE BUREAU OF

CIVIL AND TOPOGRAPHICAL ENGINEERING.

City of New York, Department of Public Parks,
Bureau of Civil and Topographical Engineering,
April 20th, 1871.

Hon. Peter B. Sweeny,

President of Department of Public Parks:

Sir:—In conformity with instructions, I have the honor to submit the following report of the proceedings of this Bureau since its organization in September last.

Under the regulations of the Department the Bureau has "charge of the surveying for and the designing of all streets, avenues, roads, public squares and places, and their grades, and the plans for the sewerage and drainage thereof, and for all bridges, tunnels, or other means of communication between the Counties of New York and Westchester, and the improvement of the Harlem river and Spuyten Duyvil creek, which by law now are or may be directed to be laid out and established by the Department of Public Parks." Also, by the regulations, the territory assigned to the Bureau is divided into four districts, or subdivisions, viz.:

"*First*—The West Side Division shall include that part of the Island of New York extending from Fifty-ninth street, west of Eighth avenue, to the Harlem river and Spuyten Duyvil creek.

"*Second*—The Harlem River Division shall include that river and Spuyten Duyvil creek, and so far on both sides thereof as may be necessary in carrying out any improvements adopted in connection therewith.

"*Third*—The Westchester Division shall include all of the County of Westchester within or under the control of the Department located north of Harlem river and Spuyten Duyvil creek.

"*Fourth*—The East Side Division shall include all that part of the Island of New York extending from Fifty-ninth street, east of Fifth and Eighth avenues, to Harlem river."

In entering upon the duties assigned to me, and before proceeding to organize field parties for the respective Divisions, some time was necessarily spent in arranging, classifying, and placing in order the large collection of maps and papers that were turned over to the Bureau; in making myself acquainted generally with the extent and condition of work done; with the several acts of the Legislature in reference to the subject; and with the nature and demands of the work requiring the earliest attention. In the furtherance of these objects, a general map was prepared, embracing the territory in charge of the Bureau, defining the several divisions, and delineating the work done and in progress.

FIRST OR WEST SIDE DIVISION.

The duties under the laws relating to this district of the city have been to a large extent performed, as to the laying out of streets, avenues, public squares and places, and pier and bulkhead lines. The portions of the work devolving upon the Department of Public Parks to complete, and coming within the duties prescribed for the Bureau, consist, as far as the subject has yet been developed, of the laying out of a street or avenue between the Eleventh avenue, or Kings Bridge road, and the Boulevard, and passing along, or near, the crest of the high land on the westerly side of the island, from about One Hundred and Fifty-ninth street to near Inwood, a distance of thirteen thousand feet; a street west of Kings Bridge road, and south of Inwood, of about four thousand three hundred feet in length, connected at each end with Kings Bridge road; some other cross streets of less extent, and several narrow ways adapted only to pedestrian use, on steep ground (where ordinary streets are impracticable), descending from the Boulevard and other main streets to the Hudson and Harlem rivers, for the purpose of giving necessary outlets for drainage and sewerage from such streets; together with such extensions, or modifications of streets, or avenues, as it may become necessary to make to form proper approaches to bridges or tunnels that may hereafter be established for crossing the Harlem river. The grades are to be adjusted and established of a considerable portion of the streets and avenues that have been laid out on the north end of the island, and monuments are to be

set to define the lines. The final maps of record are also to be made of a large portion of the work that has heretofore been done on this division.

A field party, in charge of a Division Engineer who was appointed in November last, has been engaged in developing the lines of proposed new streets and avenues before mentioned; in perfecting the location and record of location of pier and bulkhead lines in Hudson river, that had previously been laid down north of One Hundred and Fifty-fifth street; and in setting monuments to define a portion of the streets, avenues, and public places that had been previously laid out. This work has been a good deal interrupted by unfavorable weather during the winter.

SECOND OR HARLEM RIVER DIVISION.

The duties of the Bureau pertaining to this division, as prescribed by the Department, consist of surveying and designing plans for the improvement of Harlem river and Spuyten Duyvil creek, and for bridges and tunnels crossing their channels, and for other improvements adopted in connection therewith.

But little progress had been made in the preliminary work of surveys and hydrography for the improvement of Harlem river and Spuyten Duyvil creek, except a few soundings in the channel at Kings Bridge, and no locations or plans had been perfected for bridges or tunnels previous to the work coming under the charge of the Bureau.

Bulkhead lines had been laid down on both sides of Harlem river, and Spuyten Duyvil creek by the late Central Park Commissioners, which, by chapter two hundred and eighty-eight of Laws of 1868, are subject to revision by the Department. As these lines were laid down before the law was enacted authorizing the improvement of Harlem river and Spuyten Duyvil creek, and the crossing of those streams by bridges and tunnels, it is not improbable that some changes will be found necessary during the progress of the several works.

A Division Engineer was appointed in November last, and since that date has been engaged, with a small party, in establishing a base of levels along Spuyten Duyvil creek and Harlem river, from the Hudson to the East river, to serve as a plane of reference for the future work of improvement of the navigation; in developing and establishing the site of a suspension bridge over the river at a point about one thousand eight hundred feet north of the Croton High Bridge; in making preliminary examinations by surveys and soundings for the site of a proposed tunnel or bridge crossing the river at a point connecting Seventh avenue, on the New York side, with Central avenue on the Westchester side of the river; and in surveys connected with the hydrography and improvement of the channel, and such other works as it may be found advisable to adopt to perfect the navigation and commercial uses of the river. Two self-registering tide gauges are in course of preparation, to be placed at the Hudson river and the East river

ends of the stream, respectively, in order to determine the difference in the tides at those two points and the direction and force of tidal currents.

The investigations for the Suspension Bridge have resulted in determining the practicability of rock anchorage at each end of the bridge, and rock foundation above the water line, for the suspension pier on the New York side. The character of the foundation for the Westchester pier is yet to be determined by borings, the rock being, probably, at a considerable depth below the surface of the ground, and also below the water level. No doubt is entertained as to the practicability of obtaining a secure foundation in case rock should not be reached, as the foundations of the High Bridge, adjacent, were formed, to a considerable extent, without penetrating to the underlying rock. As soon as the necessary borings can be completed for a careful examination of the subject, a plan of the bridge will be prepared for submitting to the Department. From present indications, the extreme length of the bridge, between the anchorage points, or the shore abutments, will be about one thousand seven hundred feet, and the height above tide one hundred and forty to one hundred and fifty feet. Should a single central span be found expedient, after sufficient borings and tests of the foundation are made to determine the question, such span would not exceed one thousand feet. This bridge will form a convenient connection between Tenth avenue and a suitable avenue of nearly the

same elevation on the high ground on the Westchester side, which can be connected by easy grades with the present Central avenue.

A map has been prepared, on a scale adapted to working use, of Harlem river and Spuyten Duyvil creek, upon which some progress has been made in laying down soundings and other hydrographic observations of the streams, together with the connected and adjacent improvements which are already established, or are contemplated. A reduced copy of the map accompanies this report.

THIRD OR WESTCHESTER DIVISION.

The powers and duties of the Department in relation to this district, are prescribed by chapter 826 of Laws of 1869, and chapter 797 of Laws of 1870.

The area of the district covers about 8,400 acres. The laws provide for the laying out of this area into streets, avenues, roads, public squares and places ; and for the discontinuing of existing works of like nature, as may be done with benefit to the property affected, including plans for the proper sewerage and drainage of the land within said area, and for the supply of pure and wholesome water therefor. The only progress of note heretofore made in this work has been in the preliminary surveying and mapping, by contract with surveyors, of about two thousand acres of land in Westchester County.

Since the work came under the charge of the Bureau, about one thousand acres in addition have been surveyed and mapped under the original contracts. New contracts were made with the same parties on the first of November last for completing the preliminary topographical surveys and maps of the balance of the district, exclusive of Morrisania, and up to this date about one thousand five hundred acres have been surveyed and mapped under these contracts. The surveys are made, commencing on Harlem river and Spuyten Duyvil creek, and progressing by regular advances northwardly and eastwardly into Westchester County. Several surveying parties are now engaged upon the work, and a total of five thousand acres, it is expected, will be surveyed and mapped by the first day of May next. As soon as the several separate maps returned by the surveyors of this portion of the Westchester district can be collated and reduced to working form, some progress may be made in the final work of laying down streets, avenues, and other improvements in connection with those now existing or projected in the City of New York.*

FOURTH OR EAST SIDE DIVISION.

Surveys and maps have been made of that portion of the city bounded: "Southerly by the northerly side of Fifty-seventh street; westerly by the westerly side of Fifth avenue,

* A copy of a report, heretofore made on the subject of water supply to the Westchester district, is appended to this report; also an abstract of contract and specifications under which the surveys and maps of that district are being made.

from Fifty-seventh street and to One Hundred and Tenth street, and by the easterly side of Sixth avenue from One Hundred and Tenth street to the Harlem river; and easterly by the Harlem and East rivers," preparatory to the study and laying out of the "Eastern Boulevard (or such other name as shall be determined), together with such other streets or avenues, public squares or places," as are provided for in chapter six hundred and twenty-six of Laws of 1870. The maps prepared show the position and extent of all buildings and existing improvements, division lines of property, and the arrangement heretofore established of streets and avenues. A partial study has been made of the proposed Boulevard and reservations for public places, but no plan has been sufficiently matured to be definitely acted upon.

The consideration of this district has been necessarily delayed during the completion of the preliminary maps, and also owing to the unfinished condition of the laying out of Morrisania, adjoining and connected with the eastern portion of the district. The Morrisania commissioners did not complete their plan until 6th of January last.

The foregoing is a brief statement of the condition of the work and of the progress made by the Bureau. Owing to circumstances that have been alluded to, the work has been hitherto chiefly of a preliminary character. It is now approaching a condition which will enable definite plans to some extent to be considered, though much still remains to be done in the way of preparatory investigations. It has not

been found advisable as yet to organize the permanent working force upon the Third and Fourth Divisions, but it is expected this may be done soon. In commencing operations upon the extent of territory assigned to the Bureau, which embraces a great variety of work, it is believed that the time has been judiciously employed in accomplishing what has been done and in arranging plans and studying the requirements for future progress.

Important questions are to be considered in connection with the Second or Harlem River Division, which are more or less intimately connected with the work upon the adjoining divisions. These are the crossings of the Harlem river by bridges or tunnels, and the improvement of the navigation of the channel. The determination of the character of the bridges, and the expediency of tunnels, must be governed, to a considerable extent, by the nature and facilities of the navigation designed for the river. The character and adaptation of the several crossings, in view of the growing demand and future requirements for the accommodation of large populations on both sides of the channel, are questions of great importance.

The costly nature of these works requires careful consideration in devising the best and most appropriate plans and locations for their construction.

The site for the suspension bridge, before mentioned, is the only one that has as yet been clearly developed ; the

CITY OF NEW YORK
WESTCHESTER COUNTY
MORRISANIA
WESTFARMS
HUDSON RIVER
HARLEM RIVER
BOULEVARD
COMMERCE AVE
SEDGWICK AVE
AQUEDUCT AVE
ODDEN AVE
BREMER AVE
ANDERSON AVE
CENTRAL AVE
GERARD AVE
WALTON AVE
MOTT AVE
RIVER AVE
TOWN LINE
HIGH BRIDGE
CROTON
SHERMANS CREEK
SPUYTEN
CREEK
SCALE
MAP
Accompanying the Report
of
the Bureau of Civil and Topographical Engineering
April 20th 1841

MAP

SHOWING THE PORTIONS OF THE

CITY OF NEW YORK

AND

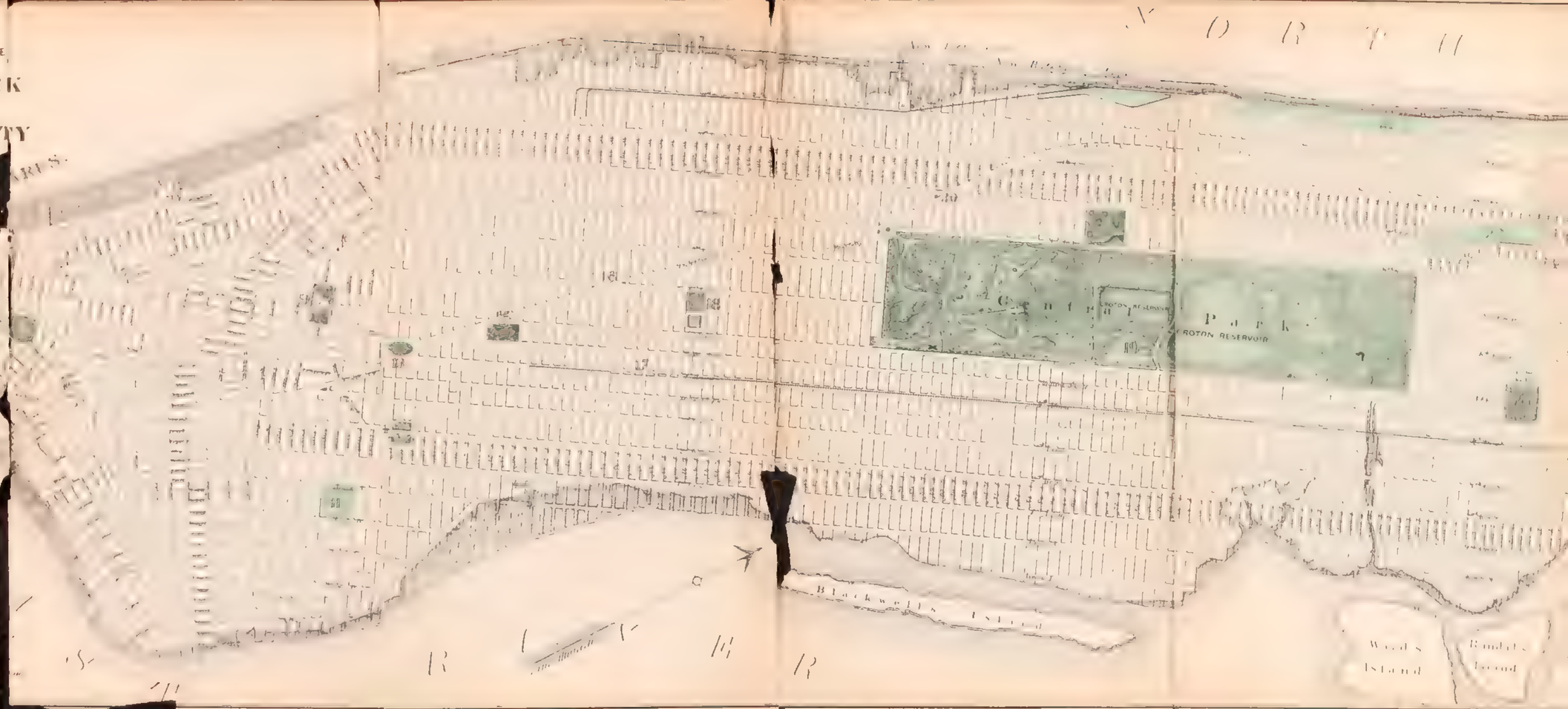
WESTCHESTER COUNTY

UNDER THE JURISDICTION

OF

THE DEPARTMENT OF PUBLIC PARKS.

REFERENCES.



DEPARTMENT OF PUBLIC PARKS Bureau of Civil and Topographical Engineering. Wm. H. GRANT, Chief Engineer

plan of the structure, and its immediate and prospective adaptation to public necessities and interests, are still to be considered. Upon the map accompanying this report are indicated, at the points marked A, B, C, D, E, several suggested sites for crossings of the Harlem river, in addition to that of the suspension bridge.

I am indebted to Mr. John J. Serrell, who formerly had charge of the laying out of the west side and north end of the island, for advice and consultations, from time to time.

Respectfully submitted,

WILLIAM H. GRANT,

Chief Engineer.

SUPPLEMENT TO REPORT

OF THE

CHIEF ENGINEER OF THE TOPOGRAPHICAL BUREAU.

SUPPLEMENT

TO

REPORT OF THE CHIEF ENGINEER OF THE TOPOGRAPHICAL BUREAU.

HON. PETER B. SWEENY,

President of Department of Public Parks :

SIR :—I mentioned in my communication of October 8th, that examinations had been made of the principal streams in the southerly part of Westchester County for the purpose of ascertaining the amount of water they would furnish, and that I would report the results as soon as a statement could be prepared. I submit now the following statement :

By the Act of May 11th, 1869 (chapter eight hundred and twenty-six), and the subsequent Act of May 19th, 1870 (chapter seven hundred and ninety-seven), it is made one of the duties of the Department to devise and prepare plans for the supply of pure and wholesome water for "that part of the County of Westchester lying west of the New York, Harlem and Albany Railroad, and south of the

southerly line of the village of Yonkers, and a line in continuation thereof."

The authority conferred is broad and general, no intimation being given as to sources of water supply to be sought, or as to the consideration of questions that might arise affecting the supply to districts outside of that referred to. A reasonable construction would seem to be, that local sources should first be sought, and if these proved insufficient, then to seek more distant ones; and also, that the natural and necessary supply of other districts should not be impaired, so far as it is practicable to determine the characteristics, extent, supply, etc., present and prospective, of such districts.

The examinations I have made, up to this time, are not sufficient to enable me to mature a definite plan, and I report now only the facts that have been obtained, together with some general conclusions upon the subject.

On the 30th of September, and 7th and 8th October, last, after a long continued drought of the season, anticipating that the fall rains would soon set in, I had the following streams gauged to determine the amount of water furnished by them at their lowest stages, viz.:

Nepperhan (or Sawmill) river;
Sprain brook;
Grassy Sprain brook;
Bronx river, and
Hutchinson river.

The points at which the streams were gauged are generally a little north of the latitude of the village of Yonkers. The aggregate amount of water was found to be four million eight hundred and twenty-five thousand four hundred and forty gallons passing in twenty-four hours.

The drainage area from which this flows is about sixteen miles in length from north to south, by an average width of three and three-fourths miles, and contains about sixty square miles.

The quantity of water furnished, in proportion to the area of the water-shed, is very small, owing to the extreme drought that had prevailed for several months previous to the gauging.

The drought during the summer months of this year and last year has been very unusual, and has afforded an opportunity of obtaining important minimum results of water supply. The amount of rain-fall as registered at the Observatory in Central Park, for the months of July, August, and September last, was..... 9.39 inches
and for the same months in 1869..... 7.72 "
against " " " 1868.....22.78 "
and " " " 1867.....12.67 "

The mean rain-fall during the same months, for a period of thirty-two years previous to 1858, was, as recorded at the Brooklyn Heights, by the late E. Meriam, 11.16 inches.

This shows the comparative low rate of rain-fall, during those months, for this year and the last, and it may be inferred from the data that the quantity of water gauged, of four million eight hundred and twenty-five thousand four hundred and forty gallons in twenty-four hours, is a safe minimum for an estimate. The drainage area furnishing this quantity is, as before stated, sixty square miles, and applying the proportion to the more easterly part of Westchester County, which contains several available streams that have not been gauged, the drainage area of which is estimated at twenty-five square miles, gives for the latter area two million ten thousand six hundred gallons in twenty-four hours; or, for the entire available drainage area of eighty-five square miles, six million eight hundred and thirty-six thousand and forty gallons in twenty-four hours. I do not assume that any water could be taken from beyond the limits of Westchester County (in the State of Connecticut), although a considerable acquisition could be afforded, within a moderate distance, by Byram river, if no difficulties in regard to jurisdiction, or as to damages by reason of the diversion of the water, were interposed.

We have then, as the minimum quantity of water, by natural flow, six million eight hundred and thirty-six thousand and forty gallons in twenty-four hours. This would be a small quantity for the contemplated supply of the district in question—too small to require much consideration—if it were conclusive as to the available *annual supply* the drainage district would afford.

The data obtained by gauging are valuable, and are essential in several respects, in case the local supply should be resorted to ; but as the supply thus developed is inadequate, it is necessary to make use of additional data to obtain an entire solution of the question.

The minimum supply of the district shows the extreme limit a population would be subjected to in extreme cases if only the natural flow of the streams were depended upon, but by means of reservoirs to store up the waters discharged by the streams during their higher stages, and in spring and fall floods, a much larger quantity of water can be made available. An extreme quantity discharged during floods can be approximated as follows : It has been ascertained by observations, that the Nepperhan river discharges at the dams in the village of Yonkers, during floods that ordinarily occur two or three times a year, an amount of water equal to one hundred and thirty million gallons in twenty-four hours. This applied proportionally to the whole drainage district of eighty-five square miles, gives four hundred and forty-six million four hundred and sixty-four thousand six hundred and forty-six gallons in twenty-four hours. The minimum quantity being (as gauged) six million eight hundred and thirty-six thousand and forty, the mean between the two may be in some degree approximated by constructing a schedule showing the probable proportions and distribution of these quantities throughout the year, thus :

The flood quantity may be assumed to be discharged during a period of 15 days	= 446,400,000	×	15	= 6,696,000,000	gallons.
Half the flood quantity for 30 "	= 223,200,000	×	30	= 6,696,000,000	"
One-fourth " " " 50 "	= 111,600,000	×	50	= 5,580,000,000	"
Double the minimum quantity for 180 days, or 6 months.....	= 13,836,000	×	180	= 2,490,480,000	"
And the minimum quantity for 90 days, or 3 months.....	= 6,836,000	×	90	= 615,240,000	"
Giving the whole quantity for the year.....				= 22,077,720,000	"
This divided by 365 days gives.....				60,500,000	"

as the mean discharge per day.

A test may be applied to this result by means of data obtained by the Croton Aqueduct Department. This data shows that in 1864, at the end of a dry season, the Croton water-shed of three hundred and thirty-eight and three-quarters square miles, had discharged for the year, ninety-four billion eight hundred and fifteen million gallons, and this proportion would give, for the area of eighty-five square miles, twenty-three billion seven hundred and ninety million gallons, which corresponds nearly with the estimate.

It is to be observed that only one-fifth of the above quantity, obtained from the Croton water-shed, was utilized and passed through the aqueduct, four-fifths passing off over the Croton dam.

The whole quantity was forty-four per cent. of about a minimum annual rain-fall.

The percentage of rain-fall that is generally taken as practicable to be utilized by means of reservoirs is about fifty per cent. But the percentage discharged by streams,

obtained by observations of this kind, cannot be safely taken in all cases as representing the quantity of water that may be actually utilized. If the district drained is sterile and uncultivated it may be practicable to intercept and shut up within it the flowing streams, and reserve all the falling water, except that which evaporates or filters away. And it may be practicable, supposing the exterior or lower district watered by the natural flow of the streams is of similar character, to cut off from it and convey away to a distant population all the water stored; but these are conditions that are not often found to exist. In the present case the contemplated drainage district, as well as a considerable district to the south of it, receiving the natural discharge of the streams, is cultivated and populous, and must be regarded as dependent upon the preservation, in a greater or less degree, of a normal condition of water flow. How much this condition may be impaired, or how much of the falling water may be stopped in its circulation, stored up in reservoirs, and diverted from its natural channels and natural uses and functions, without detriment, is a practical question that it becomes necessary to investigate.

It is also important, in connection with this point, to know whether natural facilities exist in the configuration of the drainage district for the formation of reservoirs of adequate capacity. This can only be determined by surveys. Another question, to be developed also by surveys and the consideration of tendencies of population, character

of occupancy of the district, etc., is whether the requisite quantity of water can be obtained and gathered into reservoirs in a pure and wholesome condition.

For the purpose of getting at a present approximate result (and I believe a safe one), in the absence of the necessary information on these points, I assume that it will be practicable to reserve and utilize one-fourth, or twenty-five per cent. of the rain-fall, leaving an equal amount to its free flow to meet the contingencies mentioned. There is not much doubt that reservoir facilities can be found, should it become expedient to resort to them, for storing at least such an amount of water.

Taking thirty-six inches as about the minimum of annual rain-fall, and one-fourth of it as available, we have $\frac{36}{4}$ x 85 square miles = 13,329,360,000 gallons of water per annum, or $\frac{13,329,360,000}{365}$ = 36,518,794 gallons per twenty-four hours (which it will be seen is over five times the quantity furnished by the minimum natural flow); and if we take sixty gallons per twenty-four hours as the allowance for each person, we have $\frac{36,518,794}{60}$ = 608,646, as the amount of population it will supply.

I conclude from this result, that it is practicable to supply the district in question from local sources, to the extent contemplated by the Legislature. But, whether circumstances of population and occupancy of the drainage district, in prospect, may be regarded as affecting the expediency of such a mode of supply, and whether a resort to

more distant sources, as the Croton water-shed, may be more desirable and economical, are questions that are deferred for further consideration.

The quality of the water furnished by the drainage district is good, having been found by analysis to compare very favorably with the Croton water. Owing to the height of ground of a considerable portion of the district to be supplied, the water will have to be raised to a higher level than that of the storage reservoirs by pumping; this would also be the case from whatever source the water might be obtained.

Very respectfully,

WILLIAM H. GRANT,

Engineer in Charge.

DEPARTMENT OF PUBLIC PARKS,
BUREAU OF CIVIL AND TOPOGRAPHICAL ENGINEERING,
265 Broadway, *December* 15, 1870.

Abstract of Contract and Specifications under which the Topographical Surveys and Maps of the Westchester District are being made.

"The said surveys and maps to be made according to the following specifications:

"The ground work of the survey to be a series of longitudinal lines parallel with the direction of Tenth avenue, in the City of New York, and similar transverse parallel lines at right angles therewith, all one hundred feet apart.

"The standard of measure to be used to be the same as the standard at the old Arsenal in Central Park.

"All the work to be done and returned with such accuracy that, when tested by calculations, or by measurements on the ground, no greater variations shall exist in any part, line, traverse, angle, or measure, than at the rate of fifteen one-hundredths of a foot in one thousand feet of length or distance.

"Every eighth line at least of the said longitudinal and transverse lines shall be traverse lines of survey, traced by measurements and angles. The survey and maps to include, by measurements, traverses, and angles, all buildings, streams, brooks, and visible rock surfaces; all visible boundaries of properties, and all roads, streets, avenues, and lanes, and the same to have such reference by measurements and angles with the said longitudinal and transverse lines as to admit of the verification of the work by calculation.

"Levels above high tide are to be taken and shown on the maps at every intersection of the said longitudinal and transverse lines, and at least at every fifty feet in distance along the centre of all streets, avenues, roads, and lanes now open and in use, and along the course of streams and brooks, also along the boundary lines of all properties more than three acres in extent each, and as frequently at other points as will correctly delineate the altitudes of the surface, to allow of contour lines being drawn from such levels. The standard of high tide to be the same as that used by the said Department of Public Parks in the City of New York, north of One Hundred and Fifty-fifth street, as represented by a bench mark on a monument on the late established easterly line of Kings Bridge road, at a point about twenty feet northeasterly from the northeasterly corner of 'Kings Bridge Hotel,' the elevation of the said bench mark above high tide being three and two-tenths ($3\frac{2}{10}$) feet.

"Bench marks to be made and verified at, or about, every one thousand feet of distance, longitudinally and transversely; such marks to be made on the most permanent and convenient objects accessible, and a plain reference to them, together with their height of elevation above high tide, to be noted on the margin of the maps. The bench marks to be established with such accuracy that no error shall exist, with reference to the standard of high tide before mentioned, greater than five one-hundredths of a foot, and the elevations of the ground are to be taken and shown with such accuracy that no error shall exist, with reference to said standard of high tide, greater than two-tenths of a foot.

"At every one thousand feet or less of distance, longitudinally and transversely, and wherever practicable (at such distances) at the intersections of the longitudinal and transverse lines, monuments accurately connected with the survey are to be established, either by proper iron bolts secured in the rock, or a locust post firmly set, or a corner or other part of a building, or by some other appropriate and permanent means; such monuments to be designated on the maps, naming the kind of monument. The maps to be drawn on the scale of eighty feet to one inch, on separate sheets of the best English double elephant drawing paper, well mounted on muslin, with a plain margin one and a half inches wide around each sheet, and so that boundary lines on all sheets will conform accurately with other sheets of the survey.

"Roads and streets, as legally laid out and opened by law, to be shown by fine solid red lines.

"Roads and streets, dedicated but not in use, to be shown by fine dotted red lines.

"Streams, brooks, ponds, rivers, and elevations above high tide, to be shown by blue lines and figures.

"Boundary lines of separate properties to be shown by black dotted lines.

"All traverse lines, angles, and distances measured to be shown by plain green lines and figures.

"Such longitudinal and transverse lines as are not traverse lines to be shown by finer green lines than the traverse lines.

"Names of present owners of properties to be written on each parcel in fine black italic letters.

"Brick and stone buildings to be designated by red color; framed buildings, by a light shade of india ink; green-houses and other structures of glass, by a light green color. Prominent rocks and rocky surfaces, by india ink topography. Each separate sheet of the maps to be dated and signed by the surveyor, or surveyors, and draftsmen making the same, on the margin of the sheet when it is returned to the said Department of Public Parks.

"The work to be prosecuted and completed in regular order, commencing at the southerly boundary, and progressing, by parallel transverse lines, northwardly. And I hereby agree to do the whole of the foregoing work in accordance with the specifications and conditions herein contained, and to the satisfaction and acceptance of the said Department of Public Parks, or of the engineer in charge of the Bureau of Civil and Topographical Engineering, and to receive as full compensation for all services, labor, materials, use of instruments, office rents, and all services and materials of every nature and kind whatsoever in and about said surveys and maps, at and after the rate of ——— per acre for the quantity of land surveyed within the limits hereinbefore described, and to receive the payments, after the sheets and maps have been returned, examined, tested, and approved as aforesaid, in installments at the rate of ——— per acre for the quantity of acres surveyed and drawn on the sheets so returned and approved, but

no payment shall be asked or demanded by me at any one time for less than one hundred acres of land surveyed, mapped, and returned and approved as aforesaid, except at the completion of the whole work agreed for, or at the termination of this agreement as hereinafter provided, when all balance due and unpaid under this agreement shall be due and payable.

"But it is expressly understood and agreed that no payment shall be demanded by me except from funds provided by the Supervisors of the County of Westchester, pursuant to the provisions of chapter eight hundred and twenty-six of the Laws of 1869, and chapter seven hundred and ninety-seven of the Laws of 1870, for the purpose of paying for such surveys when funds so provided are in the possession of the said Department of Public Parks for such purpose, and that I will look solely to such funds, so provided, for my remuneration under this agreement. I further agree that the work shall be done under my personal supervision, and that I will not sublet the same, or any part thereof."

REPORT

OF THE

CAPTAIN OF PARK POLICE.

REPORT OF THE CAPTAIN OF PARK POLICE.

DEPARTMENT OF PUBLIC PARKS,
BUREAU OF POLICE,
New York, April 20th, 1871.

To the Honorable Board of Commissioners
Department of Public Parks:

GENTLEMEN:—I herewith respectfully submit to you the Annual Report of the business of this Bureau for the year ending April 20, 1871.

Recapitulation of the force for the year ending April 20, 1871:

1 Captain,	8 Sergeants,
1 Lieutenant,	92 Park-keepers,
44 Gate-keepers.	

Of this force one (1) Lieutenant, six (6) Sergeants, fifty-seven (57) Park-keepers, and forty-four (44) Gate-keepers perform duty on Central Park, and two (2) Sergeants and thirty-five (35) Park-keepers perform duty at the various other parks throughout the city, as follows:

Battery Park	3
Bowling Green Park	1
City Hall Park	3
Duane Street Park	1
Beach Street Park	1
Carried forward	9

Brought forward	9
Canal Street Park	1
Tompkins Square	4
Washington Square	2
Union Square	2
Cooper Park	1
Stuyvesant Square	3
Madison Square	3
Abingdon Square	1
Sixth Avenue (Thirty-second and Thirty-fifth Streets) Parks	1
Fourth Avenue (Park Avenue) Parks	2
Reservoir Square	3
Mount Morris Square	3
Total	35

ARRESTS.

The number of arrests made by the members of this Department for the year ending April 20, 1871, are: Males, one hundred and fifty-seven (157); females, thirty-seven (37); total, one hundred and ninety-four (194), for the following offences:

	Males.	Females.	Total.
Assault and battery	4	1	5
Disorderly conduct	60	16	76
Fast driving	20	.....	20
Intoxication	22	9	31
Insanity	2	.....	2
Intoxication and disorderly conduct	14	6	20
Interfering with officer	1	.....	1
Larceny (grand)	2	.....	2
Larceny (petty)	8	1	9
Picking pockets	1	.....	1
Vagrancy	12	2	14
Violation Park ordinances (other than those enumerated above)	11	2	13
Total	157	37	194

DISPOSITIONS.

Thirty-three (33) of those who were arrested were let go with a reprimand at the station-house, one hundred and fifty-one (151) were committed or fined, and ten (10) were discharged by magistrate at the different Police Courts.

LOST CHILDREN.

Two hundred and forty (240) lost children have been restored to their parents or friends during the year.

RUNAWAYS.

Thirty-three (33) runaway teams have been caught by the officers on Central Park and returned to their owners.

NATHANIEL R. MILLS,
Captain Department of Public Parks.

REPORT

OF THE

DIRECTOR OF THE METEOROLOGICAL OBSERVATORY.

THE REPORT OF THE DIRECTOR OF THE METEOROLOGICAL OBSERVATORY.

To the Board of Commissioners of the Department of Public Parks:

GENTLEMEN:—Since my last annual report, this Department has been actively engaged in obtaining, by the aid of the self-recording instruments therein described, a complete register of the atmospheric changes that have occurred in the locality of New York. In this work there has been no interruption, and a continuous statement for every day, including Sundays and holidays, has been secured. I have also lost no opportunity of aiding in the general determination of the meteorology of the United States, so as to discover the law of storms and weather changes, for the use of science, and especially for the advantage of mariners and agriculturists.

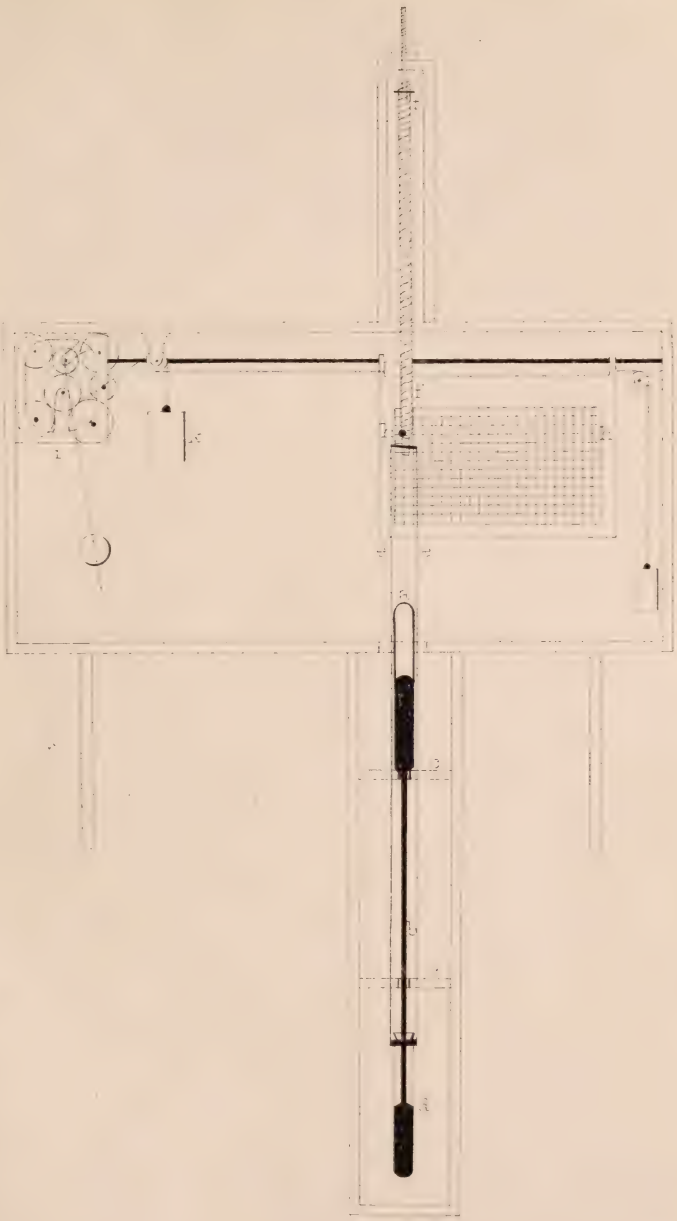
By your direction valuable improvements have been made in that portion of the building devoted to the use of the Meteorological Department. Better access has been given to the rooms, which have been rendered much more commodious and comfortable; the danger from fire has been diminished by the introduction of steam warming apparatus, the meteorological instruments have been changed in such particulars as experience suggested, and each has been placed in a new and more ornamental case. So far as appearance and convenience are concerned, these alterations leave nothing to be desired.

Congress, at its last session, took measures for the establishment of a Storm Signal Corps, in view of the interests of navigation on the great lakes and on the Atlantic coast. I have been in communication with the officers having charge of this duty, and have given them all the advice and assistance in my power, both as regards the general plan to be pursued, and the special management of the observatories that may be established. I hope that the example set by the Board of the Department of Public Parks may be followed in other cities, for it is only by the institution of observatories such as this in my charge that the meteorology of the continent can be ascertained, and the intentions of Congress carried out.

There has been made, under the advice and direction of this Department, a set of self-recording instruments for the above named United States Signal Corps. These instruments are intended to be used as models for others to be made for the proposed public observatories. Their construction is substantially the same as that of those described by me in the last year's report.

With a view of rendering self-recording instruments more easy to use, and of causing their more general adoption, I have made attempts to devise pencil machines to replace the photographic ones. The skill required to manage a pencil machine is much less than that required by one which demands a resort to photography, the latter needing a practical knowledge of that special art.

A description of these new instruments will be presently given.



HAPER'S SELF REGISTERING

PENDULUM BAROMETER

It will, therefore, be seen that I have not restricted my exertions to merely securing a correct record of the atmospheric changes occurring at this city, but have also aided in taking measures for promoting the establishment of observatories similar to our own in other parts of the United States, for the benefit of science, of navigation, and of agriculture, knowing well that in doing this I was only carrying out the liberal and enlightened intentions of the Board of Commissioners of Public Parks.

The instruments described in my last report, as giving their indications by the aid of photography, were the dry and wet bulb thermometers, and the barometer. It is these that I have converted into pencil instruments. At present, both the former and the new ones are in use, and are giving corresponding indications. It should be remarked that besides being much more easily managed, the indications of the pencil machines can be read at any moment; whereas in the case of those depending on the employment of photography, such indications cannot be read until the sensitive plate has been developed on the following day. I proceed to describe (1) the new recording barometer, (2) the new recording thermometers, wet and dry bulb.

(1) PENCIL SELF-RECORDING BAROMETER.

This consists of a glass tube more than 32 inches in length, the upper portion of which is much larger in diameter than the lower. This tube is held firmly in a fixed position. It is filled in the usual manner with quicksilver; its lower and open end dips into a cylindrical tube or reservoir, containing the same metal.

The reservoir is suspended from a spiral steel spring, and has freedom of motion up and down. When the pressure of the atmosphere diminishes, a portion of the mercury flows out of the tube into the reservoir, which, becoming heavier, stretches the steel spring, a pencil fastened to the lower end of the spring marking the position attained; of course, when the pressure of the air increases, the reverse movement occurs. The pencil makes its mark on a suitable paper card, which is carried from right to left, at the rate of half an inch per hour, by means of a clock.

It is obvious that the movements of the mercury in the tube may be magnified to any required extent by increasing the length of the spiral steel spring.

In Plate I., *a b* is the barometer tube, the upper portion *a* being wider than the lower portion *b;* it is firmly fixed in an invariable position by means of the supports *c c*; *d* is the cylindrical reservoir, also containing mercury, and suspended by means of metal rods *e e*, from the spiral steel spring *f f*, the upper end of which is attached to a firm support, the lower end holding a pencil, which presses against the paper card *h h*, which is carried by a clock *i* and the weight *k* from right to left, at the rate of half an inch per hour.

(2) PENCIL RECORDING THERMOMETERS.

The essential part of this contrivance is a copper wire, as suggested by Father Secchi. It is $\frac{1}{8}$ of an inch in diameter, and about 45 feet long, the lower end of this wire being attached to an invariable support, and the upper to the end of a lever of unequal arms. The wire passes down the outside of the northern wall of the Observatory and is screened from the

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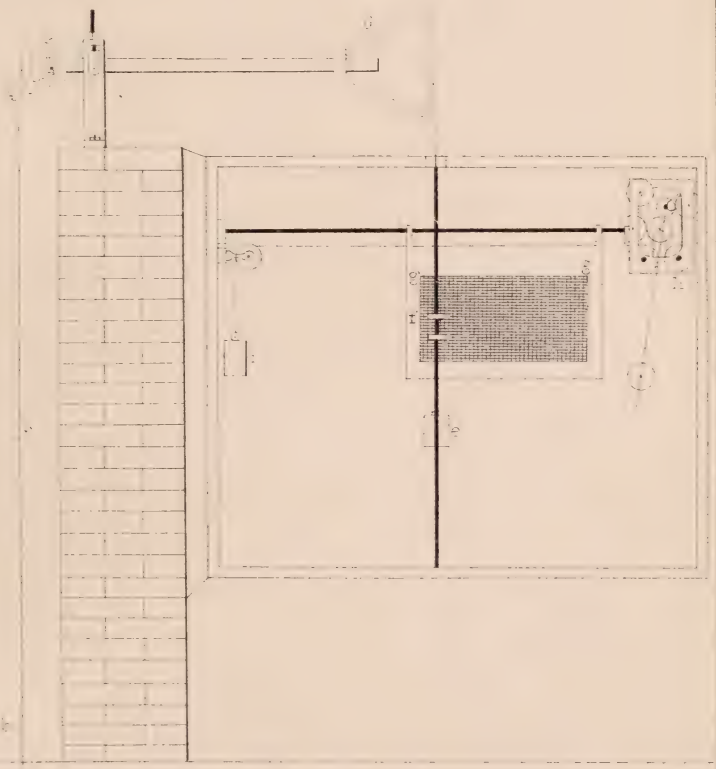
PLATE II.



DRAPER'S SELF REGISTERING

PENCIL THERMOMETER.

1870

rays of the sun. To the longer arm of the lever a weight is attached, running between guides, the line of attachment bearing a pencil which presses against a card, drawn by a clock from right to left, at the rate of half an inch per hour.

There are two of these wires with their accompanying levers, one of them being wrapped with cotton kept constantly moist by water permitted to trickle down it. The other is left naked. The latter answers to the dry-bulb thermometer, the former to the wet.

When the temperature increases these wires extend, when it diminishes they contract, and the attached lever correspondingly moving, the pencil makes its appropriate marks.

In Plate II., *a b* is the uncovered wire, its lower end *b* being fixed, its upper attached to the lever *c d*, which has arms of unequal length and terminating in circular arcs. From the end of the longer arm is suspended a weight *e*, moving between guides. To the line of suspension at *f*, the pencil is attached. It impresses marks on the card *g g*, which is drawn from right to left by the clock *h* and the weight *i* at the rate of half an inch per hour.

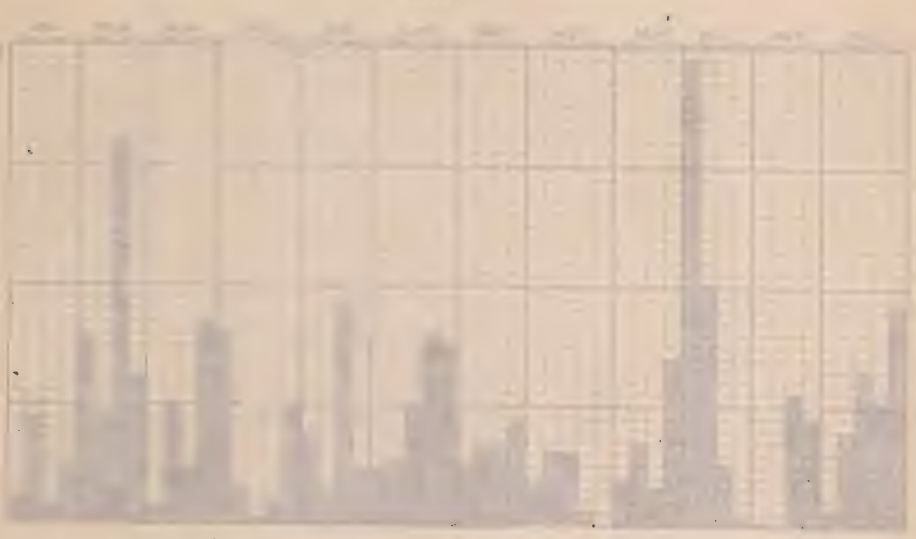
In this plate I have not depicted the wet thermometer, as it might render the figure confused. Its construction is the same as in the preceding, except that the wire is wrapped with cotton supplied with water from a small reservoir suitably arranged.

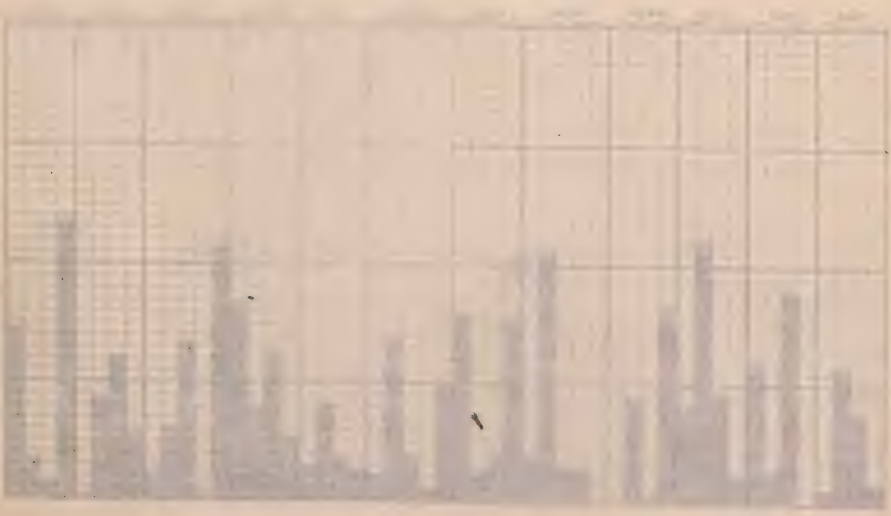
To insure convenient comparison, the register from both thermometers is made upon the same card, that of the wet immediately above the dry one.

In these descriptions, though I have used the designation *pencil* machines, it must be understood that I have discontinued the use of the black lead-pencil, and employ a pen of suitable construction, fed with ink, the trace of which is of course much more legible and permanent. The friction also is considerably less when the pen is properly adjusted.

Inquiry has frequently been made of me, both as regards the instruments herein described and also those in my former report, whether the spiral steel springs in use do not in the course of time vary in their elasticity and give rise to incorrect indications. It is to be understood that no change occurs, nor indeed can it occur, unless the modulus of elasticy of the spring should be overpassed; a condition which, of course, does not happen in any of these cases.

During the year I have also made numerous experiments with a view to the construction of new and accurate instruments for the measurement of evaporation of water, expecting that these would be of great value to the Croton Board of Department of Public Works, or to the officers having charge of the supply of water to the city. The rain-gauge described in my last report has been now in uninterrupted and successful operation for nearly two years, giving correct information not only of the total quantity of water that has fallen, up to any specified epoch, but also of many minute and singularly interesting details. It has furnished a permanent record of the time of beginning and ending of every rain shower, and of the various phases occurring, the slackening and increasing of the rain, the quantities of water that fell during such minor periods, and the moment at which such variations happened, and this is not only of mere showers, but also of every longer





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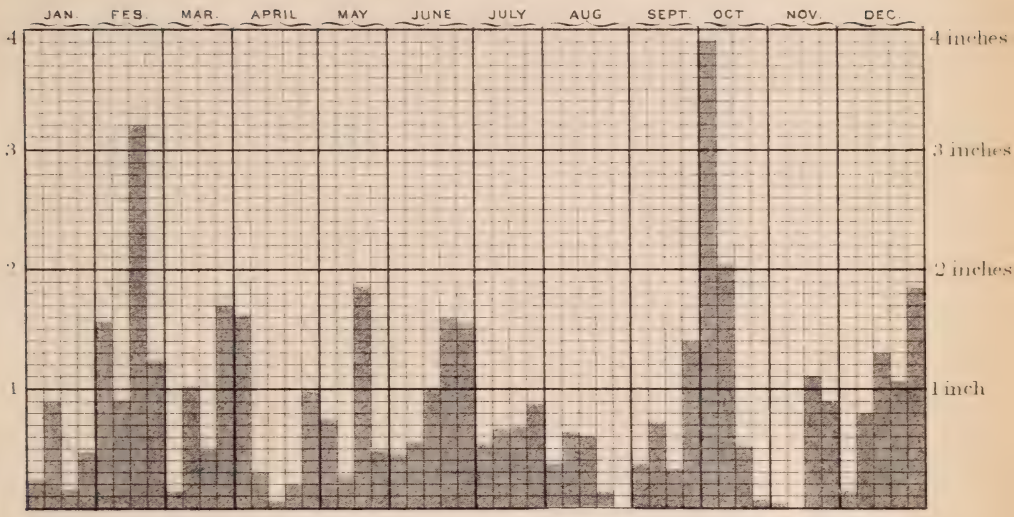
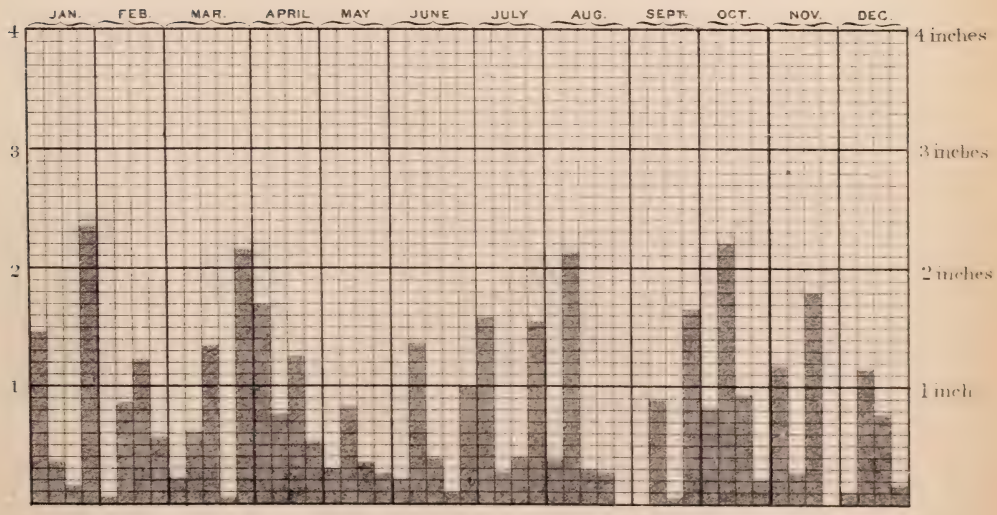
Synoptic Table of Rain fall for 1869

FIG. 1



Synoptic Table of Rain fall for 1870.

FIG. 2



continued rain. Two of the most important elements required by the Department having charge of the supply of the city with water, are the amount of rain-fall and the loss by evaporation. I hope in the course of the ensuing year to be able to supply correct observations on the latter point, so far as the locality of this observatory is concerned.

As respects rain-fall, figures 1 and 2, plate III., may serve as illustrations. The former offers a graphical representation of the rain-fall for the year 1869, the latter for the year 1870. An inspection of these figures will show, that the months of each year are laid off in vertical columns, and the rain-fall for each week of each month is marked in inches and tenths of inches by the horizontal lines. As examples, in the third week of February, 1869, there fell three inches and two-tenths of rain; in the third week of April there fell only half a tenth. The maximum quantity of water falling during any one week of that year was in the first week of October, the quantity then being three inches and nine-tenths. If we look at the second figure, that for 1870, the fall of rain was much more uniform, and never reached in any one week the quantities cited in February and October of the preceding year. There were only four instances in which the rain-fall was more than two inches; they occurred in the last week of January, the last of March, the second of August, and the second of October. There were three weeks in that year in which there was no rain. These were the last in August, the first in September, and the last in November. From these synoptic tables it will be seen, that in the months of May and June, 1870, there was much less rain-fall than in the corresponding months of 1869. Tables thus constructed, from the self-recording registers of this observatory, serve to show whether there will

be a scanty supply of water for the summer. If such instruments were placed on the supplying water-sheds of the Croton Aqueduct, and synoptic tables constructed from their indications for successive years in the manner here shown, it would readily be determined whether the rain-fall is diminishing, and whether other sources of supply besides the Croton river should be looked for.

On the supposition that the rain-fall on the area supplying the Croton Aqueduct is the same as on the Central Park, the total quantity of water for the year 1869 was 228,826 million gallons. The total quantity for 1870 was 206,776 million gallons. It therefore appears that in the latter year the supply was very much less than in the former, as follows:

1869,	228,826	million	gallons.
1870,	206,776	"	"
Difference,	22,050	"	"

In a minor but by no means an uninteresting particular, the self-recording rain-gauge of this Observatory has proved to be of public use. Instances have occurred in which arrangements have been made between employers and their workmen for the payment to the latter of a diminished rate of wages on rainy days. In cases wherein disputes have arisen as respects the occurrence of such rainy days, and the interference of the rain with work, by reason of its greater or less quantity during working hours, the indications of the rain-gauge have proved to be of singular use, and have been accepted as affording a satisfactory determination of the amount of

wages to be paid—a striking example of the fact that refined scientific instruments may be of important use in the interest of the laboring man.

I have furnished records of the condition of the atmosphere to the Commissioners of Public Charities and Correction, and to the Health Department of New York. Much interest has of late been excited by the connection appearing to exist between meteorological conditions and the death rate, not only in the hospitals but in cities generally. I attach to this report a synoptic chart, which I have constructed, of the death rate at various atmospheric conditions, both of temperature and moisture, as shown by the dry and wet bulb thermometers In this chart the upper curve indicates how the death rate increases with the temperature, which is marked by the middle curve, the lower curve giving the degree of the wet bulb. The chart is for the month of July, 1870. The numbers on the lines marked A B represent the temperature in Fahrenheit degrees, and also the number of deaths per day. Those on the line B C, the days of the month.

As an example, it certainly appears from Plate IV. that there are some curious coincidences. Thus, the high temperature occurring on the 1st of July, and again on the 6th and on the 17th, was attended by a high death rate. The diminished temperature of the 3d, 9th, 20th and 22d by a low death rate. That rate rose again on the 25th with the rise of temperature, and fell again about the 28th with its fall.

It will be remarked, however, that with these coincidences there are some exceptions, as, for example, on the 12th of the month, when, though the temperature was stationary, the death rate rapidly rose.

It will be remarked, also, that the maximum death rate usually follows the maximum temperature after the interval of about one day, and the same may be said of the minimum This is as though it took about that length of time for these variations of temperature to give the full impression of their effect.

I have also furnished meteorological tables to various other meteorological institutions, and each week to the New York newspapers. The observations made have been much sought after in many legal controversies before the courts.

Automatic or self-recording instruments give results incomparably more valuable than those which are restricted to periodical personal inspection. They require, however, very great care, not only in their management, but also in the interpretation of their indications. To this latter point I have given much attention, as also to the means of reduplicating or copying the registers primarily given by the instruments. The necessary measurements have been made on a correctly divided brass scale. The reduplication or copying has been accomplished as the occasion seemed to indicate, sometimes by a pantagraph, sometimes by photography, sometimes by direct tracing. The interpretation of the results of these registers has been constantly checked by direct and periodical readings of the barometers and thermometers.

I may be permitted to close this report with some miscellaneous remarks respecting the instruments thus in use, these remarks serving as an appendix to the description given in the report of last year.

And, first, as regards the barometer. I have made no attempt to secure in the photographs made by the instrument

Comparison of Death-rate and Temperature for July 1870.

any correction for variation of temperature, preferring rather to furnish the degree given by the attached thermometer. In some foreign observatories such a correction is attempted by the addition of an apparatus of metal rods, usually made of zinc, but these, by reason of their smaller mass, heat and cool more quickly than the mercurial column in the barometer tube itself. In attempting correction in that manner regard should be had to the mass of the correcting metal, as well as to its coefficient of expansion. This criticism applies, of course, in a certain degree, to an attached thermometer as commonly used.

2d. Though in some of the foreign observatories automatic instruments are not employed for the determination of the force of the wind, I am persuaded that the system here used is highly desirable.

When the force of the wind is deduced from its velocity, by the well-known rules, all the characteristic variations are missed, everything is as it were mixed up, and we have what may be designated as merely a general mean of the whole. Often the most important phases are altogether lost; as regards the rule itself, it is necessarily incorrect if it does not include variations in the density of the air. Of two winds, blowing with an equal velocity, that which is of denser air will produce a greater force.

In the subjoined tables indicating the velocity of the wind, I have not thought it well to introduce the correction of the friction coefficient, used in the English observatories, preferring simply to give the numbers as observed.

3d. In the determination of the direction of the wind, I believe that great advantages arise from the use of the simple vane. It has been supposed to be desirable to resort to means

for diminishing or checking its oscillations, under an impression that if these be permitted to be recorded on the register, they will interfere with a correct determination of the prevailing direction of the wind. But an examination of the plate opposite page 114 of last year's report will show how needless such an apprehension is. In such an instance there is no difficulty in ascertaining the cardinal direction of the predominating wind, and this is not a selected specimen; it may be received as a correct sample of the daily proofs.

But from an inspection of that plate it will be perceived that the indications are given of gusts periodically occurring in the general movement of the wind; periodically, for they happen at intervals sensibly to equal each other. The same will also be remarked in the plate indicating the force of the wind opposite page 116. Any general discussion of the movements of a storm must include a discussion of these periodical gusts, the very existence of which is concealed, when the oscillations of the vane are checked.

4th. In the photographic method employed in this observatory, instead of sensitive paper a dry collodion surface is used. In this manner not only is a correct surface obtained, there being no bulging or bagging, and the surface is much more sensitive to light.

I add hereto tables containing the monthly and annual reports for the year 1870.

All which is respectfully submitted.

DANIEL DRAPER,

Director of Meteorological Observatory,

Central Park.

I.

TABLE *showing the Heights of the Barometer, monthly, for the Year* 1870, *reduced to Freezing Point, Fahrenheit.*

MONTHS—1870.	MEAN AT 7 A.M.	MEAN AT 2 P.M.	MEAN AT 9 P.M.	MONTH MEAN.	MAXIMUM.	MINIMUM.	DIFFERENCE OR RANGE.
January	30.035	29.976	30.005	30.005	30.528	28.998	1.540
February	29.847	29.781	29.810	29.812	30.422	29.058	1.364
March	29.850	29.820	29.833	29.834	30.456	29.106	1.350
April	29.878	29.841	29.874	29.864	30.350	29.440	.910
May	29.876	29.846	29.849	29.857	30.290	29.374	.916
June	29.898	29.871	29.876	29.881	30.242	29.716	.526
July	29.881	29.870	29.876	29.875	30.182	29.686	.496
August	29.929	29.898	29.908	29.911	30.364	29.810	.554
September	30.058	30.014	30.035	30.035	30.442	29.690	.752
October	29.992	29.984	29.995	29.990	30.572	29.396	1.172
November	29.923	29.880	29.923	29.908	30.352	29.474	.878
December	29.896	29.840	29.872	29.869	30.388	29.380	1.008

Year mean at 7 A.M.	29.921
" 2 P.M	29.968
" 9 P.M	29.904
Mean for the year	29.931

Maximum for the year	30.572 at 9 A.M. Oct. 24.
Minimum for the year	28.988 at 4 P.M. Jan. 2.
Difference or range	1.584

II.

TABLE *showing the State of the Thermometer, monthly, for the Year* 1870.

MONTHS—1870.	MEAN AT 7 A.M.	MEAN AT 2 P.M.	MEAN AT 9 P.M.	MONTH MEAN.	MAXIMUM.	MINIMUM.	DIFFERENCE OR RANGE.
January	34.49	40.28	38.09	37.45	58.0	17.0	41.0
February	27.21	34.34	32.35	31.27	52.0	9.5	42.5
March	31.08	37.18	31.11	34.09	56.0	18.7	37.3
April	46.28	55.50	50.33	50.70	80.0	33.0	47.0
May	56 06	65.50	62.88	60.86	86.2	45.0	41.2
June	68.13	77.91	72.65	72.85	94.0	55.0	39.0
July	72.36	80.79	76.92	76.55	93.0	59.0	34.0
August	70.29	80.28	75.29	75.25	90.0	58.0	32.0
September	61.85	73.31	67.64	67.64	85.2	52.0	33.2
October	52.63	61.40	56.19	56.71	76.2	32.5	43.7
November	41.44	50.05	44.85	45.49	66.5	29 0	37.5
December	31.47	36.97	33.95	34.13	57.0	9.5	47.5

Year mean at 7 A.M.	49.44
" 2 P.M.	57.79
" 9 P.M.	53.52
Mean for the year	53.58

Maximum for the year	94.0	above zero at 4 P.M. June 28.
Minimum for the year	9.5	" at 4 A.M. Feb. 22.
Difference or range	84.5	

III.

TABLE *showing the State of the Wet-bulb Thermometer, monthly, for the Year* 1870.

MONTHS—1870.	MEAN AT 7 A.M.	MEAN AT 2 P.M.	MEAN AT 9 P.M.	MONTH MEAN.	REMARKS. DIFFERENCE BETWEEN DRY AND WET BULBS.	
January	32.51	36.70	35.36	34.85	37.45	2.60
February	26.57	33.35	31.19	30.37	31.27	.90
March	30.06	35.22	32.45	32.57	34.09	1.52
April	42.17	49.34	45.23	45.58	50.70	5.12
May	51.96	58.20	58.99	56.38	60.86	4.48
June	63.75	69.33	66.68	66.58	72.85	6.27
July	76.10	71.65	69.85	69.53	76.55	7.02
August	64.88	69.46	68.38	67.57	75.25	7.68
September	57.52	62.60	61.45	60.52	67.64	7.12
October	49.34	53.30	50.92	51.18	56.71	4.53
November	36.97	43.58	39.61	40.05	45.49	5.44
December	29.49	33.49	31.51	31.49	34.13	2.62

Year mean at 7 A.M.	46.02
" 2 P.M.	51.45
" 9 P.M.	49.30
Mean for the year	48.89

Difference between the Wet and Dry-bulb Thermometers for the year at—

	7 A.M.	2 P.M.	9 P.M.
Dry-bulb	49.44	57.79	53.52
Wet-bulb	46.02	51.35	49.30
	3.42	6.44	4.22

IV.

TABLE *showing the Duration and Depth of Rain and Snow, monthly, during the Year* 1870.

RAIN.

MONTHS—1870.	NO. OF DAYS ON WHICH RAIN DESCENDED.	DURATION.			DEPTH IN INCHES.	TOTAL DEPTH IN INCHES.	DEPTH OF WATER PRODUCED IN INCHES.	REMARKS.
		Days.	Hours.	Minutes.				
January	11	3	14	35	4.41	4.41	.....	
February	7	1	17	35	2.83	7.24	.....	
March	4	2	4	....	3.33	10.57	.....	
April	12	4	3	40	5.11	15.68	.....	
May	12	3	7	15	1.93	17.61	.....	
June	13	2	10	40	2.82	20.43	.....	
July	8	1	9	....	3.76	24.19	.....	
August	8	1	20	....	3.07	27.26	.....	
September	3	1	18	45	2.56	29.82	.....	
October	11	3	11	45	5.00	34.82	.....	
November	7	1	20	30	2.45	37.27	.....	
December	5	....	23	50	2.18	39.45	.....	
Total	101	28	17	35	39.45	2.87	42.30	Total depth of rain and melted snow.

SNOW.

January	3	....	17	15	1.12	1.12	.14	
February	2	1	2	30	9.25	10.37	1.00	
March	7	2	1	15	9.62	19.99	1.15	
April	1	....	12	....	2.50	22.49	.43	
December	2	....	14	30	3.00	25.49	.15	
Total	15	4	23	30	25.49	.....	2.87	

V.

TABLE *showing the Velocity of the Wind, and Prevailing Winds, during the Year* 1870.

MONTHS—1870.	MILES.	DAILY MEAN.	HOURLY MEAN.	PREVAILING WIND.
January	6,960	224.5	9.35	West-southwest.
February	8,127	290.6	12.10	West-northwest.
March	8,947	288.6	11.99	Northwest.
April	7,534	251.1	10.76	Northwest.
May	5,321	171.6	7.16	Northeast.
June	4,575	152.5	6.45	West.
July	4,725	152.4	6.34	West-northwest.
August	4,328	139.6	5.82	Northwest.
September	4,550	151.6	6.73	South-southwest.
October	6,081	196.1	8.14	West-northwest.
November	6,723	224.1	9.30	Northwest.
December	7,760	250.3	10.39	West-northwest.

The total distance traveled by the wind during the year was 75,631 miles.

The prevailing winds were northwest and west-northwest.

VI.

TABLE *showing the Points from which the Wind came during the Year* 1870.

Points.	January.			Feb.			March.			April.			May.			June.			July.			August.			Sept.			October.			Nov.			Dec.			Total.
	7 A.M.	2 P.M.	9 P.M.	7 A.M.	2 P.M.	9 P.M.	7 A.M.	2 P.M.	9 P.M.	7 A.M.	2 P.M.	9 P.M.	7 A.M.	2 P.M.	9 P.M.	7 A.M.	2 P.M.	9 P.M.	7 A.M.	2 P.M.	9 P.M.	7 A.M.	2 P.M.	9 P.M.	7 A.M.	2 P.M.	9 P.M.	7 A.M.	2 P.M.	9 P.M.	7 A.M.	2 P.M.	9 P.M.	7 A.M.	2 P.M.	9 P.M.	
N	5	2	3	3	1	4	1	5	2	4	1	3	1	0	2	1	1	0	1	0	0	2	2	1	4	4	3	1	1	1	0	0	0	0	1	1	61
NNE	1	0	1	3	1	0	3	0	2	1	3	1	3	2	2	2	1	1	4	0	0	1	0	1	1	1	1	3	4	3	2	0	1	1	1	2	53
NE	4	3	5	2	2	2	3	2	2	3	4	2	6	3	3	5	2	1	3	2	1	1	0	1	2	2	0	1	1	0	0	0	1	0	0	1	70
ENE	2	4	1	1	1	0	2	4	3	3	4	2	2	5	2	3	4	4	0	3	1	0	1	0	1	2	1	1	1	1	1	2	1	0	1	0	64
E	0	0	0	1	1	1	1	2	2	1	0	0	2	2	2	0	1	1	0	3	1	0	1	1	0	0	1	0	0	0	0	0	0	1	0	0	25
ESE	1	0	0	0	0	0	0	1	1	1	2	1	0	2	1	0	1	5	1	0	5	0	1	0	2	1	2	0	0	0	0	1	0	0	2	0	31
SE	0	3	1	0	5	1	1	1	1	0	5	2	1	3	2	2	3	4	0	3	3	0	4	2	0	3	2	1	2	1	0	2	0	0	1	1	60
SSE	2	0	1	1	0	3	0	0	0	0	1	2	0	1	5	0	1	1	1	2	3	0	6	4	1	2	2	0	3	1	2	2	1	0	0	0	48
S	0	0	1	1	0	0	1	0	0	0	0	3	1	1	2	0	1	0	1	2	2	1	1	2	1	0	1	1	3	3	0	0	2	0	0	1	32
SSW	3	0	2	0	0	0	0	0	0	1	0	3	0	2	2	0	3	0	0	1	0	3	0	5	0	4	7	1	0	4	0	0	0	1	0	1	43
SW	1	1	2	0	1	0	0	1	0	0	1	2	0	4	2	2	2	2	1	1	7	3	7	4	1	1	3	2	4	3	4	2	2	2	0	2	70
WSW	3	4	5	0	1	0	1	2	0	5	2	2	5	2	2	0	1	3	7	2	1	3	2	2	5	2	0	4	2	3	6	4	3	5	6	2	97
W	5	2	3	4	3	4	1	1	4	2	1	0	4	1	0	6	1	7	1	7	4	0	1	3	5	1	0	6	2	4	3	5	6	7	1	6	120
WNW	2	5	4	7	7	8	9	6	6	3	2	3	3	0	2	6	4	0	7	4	2	3	1	1	2	3	4	6	5	4	5	4	6	11	11	6	162
NW	2	6	1	4	5	4	3	5	3	4	3	4	1	3	2	3	3	1	4	1	1	5	3	1	2	3	2	3	2	2	7	7	5	1	6	7	119
NNW	0	1	1	1	0	1	5	1	5	2	1	0	2	0	0	0	1	0	0	0	0	0	1	3	3	1	1	1	1	1	0	1	2	2	1	1	40

REMARK.—The prevailing wind for the year 1870 was west-northwest.

VII.

TABLE *showing Comparison of Years* 1868, 1869, 1870.

	1868.	1869.	1870.
Barometer :			
Highest—inches	30.750	30.625	30.572
" " date	Feb. 24—7 A.M.	Dec. 9—11 A.M.	Oct. 24—9 A.M.
Greatest mean monthly pressure	30.165	30.068	30.035
" " " " date	February.	December.	September.
Lowest—inches	29.076	28.932	28.988
" " date	Dec. 7—9 P.M.	Feb. 4—7 A.M.	Jan. 2—4 P.M.
Least mean monthly pressure	29.958	29.723	29.812
" " " " date.	December.	May.	February.
Mean for the year	30.054.	29.909	29.931
Thermometer :			
Highest—degrees	95.5	94.7	94.0
" " date	July 4—2:30 P.M.	Aug. 21—2 P.M.	June 28—4 P.M.
Mean of the warmest month	76.0	72.8	76.0
" " " " date	July.	July.	July.
Lowest—degree	1.4	4.0	9.5
" " date	Feb. 23—4:35 A.M.	Mar. 1—4 A.M.	Feb. 22—4 A.M.
Mean for the year	48.9	51.4	53.5
Rain :			
Amount—inches	50.42	40.50	39.45
Snow :			
Amount (as water)—inches	8.05	6.23	2.87

JANUARY, 1870.

Date.	Barometer (Thermometer attached). 7 A. M. Observed Height.	7 A. M. Thermometer.	2 P. M. Observed Height.	2 P. M. Thermometer.	9 P. M. Observed Height.	9 P. M. Thermometer.	Thermometer (Shade in open air). 7 A. M. Dry.	7 A. M. Wet.	2 P. M. Dry.	2 P. M. Wet.	9 P. M. Dry.	9 P. M. Wet.	Wind. 7 A. M. Direction.	2 P. M. Direction.	9 P. M. Direction.	Velocity in miles for 24 hours, ending at 2 P. M.	Clouds. 7 A. M.	2 P. M.	9 P. M.	Rain and Snow. Time of Beginning.	Time of Ending.	Amount of Water. Inches.	Depth of Snow. Inches.
1	30.106	33.7	30.066	41.5	29.968	42	33.7	33	41.5	40	42	42	NW	NE	NE	117	8	10	10	1:30 P. M.	5 P. M.	.08	
2	29.542	45.5	29.056	52.2	29.176	40	45.5	44.5	52.2	50.2	40	33.5	NE	SE	SSW	445	10	10	2	1 A. M.	1:30 P. M.	1.18	
3	29.496	36	29.524	40.5	29.618	35.7	36	32	40.5	34.2	35.7	31.2	SSW	SW	WSW	517	3	8	3				
4	29.658	29	29.662	33.5	29.770	31.5	29	27	33	33	31.5	31	W	W	W	210	2	6	10				
5	29.916	27.5	30.088	33	30.224	30.5	27.5	27.5	33	32.5	30.5	30.5	WNW	WNW	W	298	8	5	0				
6	30.148	33	30.034	42.5	29.984	40.7	33	31.5	42.5	24.2	40.7	27	WSW	WSW	WSW	213	8	7	10	6:45 A. M.	12 P. M.	.06	
7	30.016	25.7	30.078	27	30.108	30.5	25.7	24.2	27	26	30.5	30	NW	NW	WNW	339	6	4	9	oh. om. A. M.	4 A. M.	.11	
8	29.938	27.2	29.828	30	29.968	20.5	27.2	27	30	30	20.5	20.5	ESE	WNW	WNW	165	9	1	0	7:45 A. M.	11:30 A. M.	.10	1.00
9	30.182	17	30.274	21	30.282	27	17	17	21	21	27	27	W	WNW	WSW	286	0	3	9				
10	30.128	29	29.990	30	30.008	37	29	29	30	30	37	35.5	SSW	WNW	WNW	292	10	9	0	12 M.	1 P. M.	.....	Very slight.
11	30.196	31.7	30.300	41.5	30.330	41.5	31.7	31.7	41.5	35	41.5	38	W	NW	SSE	127	0	7	8				
12	30.152	42.7	29.962	49.5	30.022	45.7	42.7	41	49.5	43	45.7	41.7	SSW	WSW	SW	145	7	8	9				
13	29.964	45.5	29.844	50	30.046	30.2	45.5	42.5	50	48.2	30.2	29	SSE	W	N	142	9	8	10				
14	30.376	17.5	30.512	27	30.416	27.5	17.5	17.2	27	26.7	27.5	27.5	N	ENE	NE	298	9	10	10	8:30 P. M.	12 P. M.	.03	
15	30.206	32.5	29.938	36	29.772	47	32.5	32.5	36	35.5	47	46.5	NE	NE	WSW	368	10	10	10	oh. om. A. M.	9 P. M.	.32	
16	30.064	39	30.194	46	30.260	38.5	39	36.5	46	41	38.5	36.5	W	NW	NE	199	3	5	8				
17	30.144	40	29.982	51.5	29.994	55.5	40	39.5	51.5	51	55.5	54	ENE	SE	SW	176	10	10	10	8:30 A. M.	11 P. M.	.15	
18	30.214	48	30.320	43.5	30.410	43	48	41	43.5	34.5	43	34	W	NW	NNW	237	8	8	4				
19	30.504	29.7	30.490	38.5	30.416	31.5	29.7	25.7	38.5	36	31.5	30.7	N	ENE	NE	126	6	3	3				
20	30.288	33.7	30.132	40	30.048	41.5	33.7	33	40	37.5	41.5	39.7	NE	NNW	S	27	4	7	0				
21	30.062	36.7	30.116	43.5	30.288	35	36.7	34	43.5	37	35	31.5	WSW	NW	N	169	0	4	2				
22	30.450	30.5	30.424	39.5	30.340	42.2	30.5	27.5	39.5	36	42.2	41	N	SE	SE	105	0	7	10				
23	30.062	45.7	29.968	54.5	30.038	55.5	45.7	44.7	54.5	52.2	55.5	53.2	SSE	WSW	WSW	146	10	8	10	8:20 P. M.	12 P. M.	.03	
24	30.148	35.2	30.152	38.5	30.092	57.5	35.2	32	38.5	35.5	37.5	36	N	ENE	ENE	193	7	9	10	oh om. A. M. 8:45 P. M.	1:15 A. M. 12 P. M.	.02 .03	
25	29.632	38.7	29.432	46	29.652	40.7	38.7	38	46	45.7	40.7	38	ENE	N	W	193	10	10	7	oh. om. A. M.	4:10 P. M.	1.33	
26	29.902	37.7	30.006	51.5	30.046	49.2	37.7	34.5	51.5	43	49.2	44.2	WSW	WSW	SSW	204	7	5	4				
27	30.012	44.5	30.072	49.5	30.146	39.5	44.5	40.5	49.5	43	39.5	35.5	SW	NW	N	182	2	4	0				
28	30.220	32	30.232	40	30.240	40	32	28.2	40	32	40	32.5	N	N	NW	220	0	6	8				
29	30.064	35	29.778	40	29.602	36.2	35	32.5	40	39.5	36.2	34.5	NE	ENE	WNW	121	10	10	10	9 A. M.	11 P. M.	.93	
30	29.868	38	29.932	40.7	29.948	37.7	38	32.7	40.7	34	37.7	33	WNW	WNW	NE	390	5	4	10				
31	29.910	31.5	29.856	30.5	29.762	31	31.5	30	30.5	30.5	31	31	NNE	NE	NNE	250	10	9	10	10 A. M.	11:30 P. M.	.04	12

FEBRUARY, 1870.

Date.	Barometer (Thermometer attached). 7 A. M. Observed Height.	7 A. M. Thermometer.	2 P. M. Observed Height.	2 P. M. Thermometer.	9 P. M. Observed Height.	9 P. M. Thermometer.	Thermometer (Shade in open air). 7 A. M. Dry.	7 A. M. Wet.	2 P. M. Dry.	2 P. M. Wet.	9 P. M. Dry.	9 P. M. Wet.	Wind. 7 A. M. Direction.	2 P. M. Direction.	9 P. M. Direction.	Velocity in miles for 24 hours ending at 2 P. M.	Clouds. 7 A. M.	2 P. M.	9 P. M.	Rain and Snow. Time of Beginning.	Time of Ending.	Amount of Water. Inches.	Depth of Snow. Inches.
1	29.610	29.2	29.788	35.2	29.996	24.5	29.2	29.2	35.2	35	24.5	24.2	NW	NW	NW	297	3	7	0				
2	30.094	20.7	29.940	39	29.990	34.2	26.7	26.2	39	38	34.2	33.5	E	SE	NNW	301	7	8	0				
3	30.072	30	30.066	36.7	30.196	25.7	30	29.2	36.7	36.2	25.7	25.2	NNE	N	N	150	3	2	10				
4	30.376	17.5	30.376	24.5	30.380	21.5	17.5	17.5	24.5	24.5	21.5	21.2	N	ENE	NE	353	0	4	9				
5	30.240	24	30.180	28.5	30.182	29.5	24	24	28.5	28.5	29.5	29.2	NNE	NE	N	352	8	9	10				
6	30.074	28	30.034	32.5	30.068	31	28	26.7	32.5	31.5	31	30.5	N	WNW	N	136	8	6	2				
7	30.152	29.5	30.150	36	30.130	37.7	29.5	29.2	36	35.2	37.7	36	N	NNE	E	78	0	2	10				
8	29.766	32	29.224	32	29.168	28	32	32	32	32	28	28	NE	NE	NW	322	10	10	10	5 A. M.	9 P. M.	.82	8.00
9	29.370	29	29.416	33	29.514	32.7	29	29	33	32.5	32.7	32.2	WNW	NNW	W	530	8	3	8				
10	29.588	29.5	29.620	36.5	29.814	32	29.5	29.2	36.5	36	32	31.7	W	NW	WNW	246	7	8	7				
11	30.000	23	29.992	32.7	29.898	36.5	23	22.5	32.7	32.2	36.5	34.2	W	W	SSE	316	4	8	10				
12	29.590	37	29.552	43	29.694	39.5	37	36.2	43	38.5	39.5	34	S	WSW	NW	145	10	7	3	4 A. M.	7:15 A. M.	.03	
13	29.980	24	30.038	28	30.108	34.5	24	22.5	28	28	34.5	33.7	WNW	WNW	NW	386	3	2	0				
14	30.016	27	29.796	40.5	29.614	46	27	25.7	40.5	38.5	46	44.7	NE	SE	SSE	112	9	10	10	4 P. M.	12 P. M.	.40	
15	29.650	43.5	29.700	44	29.800	35	43.5	42	44	43	35	33.7	W	NW	N	174	9	10	10	2 P. M.	11:15 P. M.	.42	
16	30.062	33.2	30.194	41	30.358	37.2	33.2	29.2	41	34.5	37.2	31.5	NW	WNW	WNW	261	2	0	0				
17	30.420	30.5	30.356	45	30.188	44	30.5	29.2	45	41.2	44	41.7	WNW	SE	SSE	111	3	2	10	8 P. M.	9 P. M.	very slight	
18	29.756	48	29.372	51.7	29.252	41.5	48	47.7	51.7	51.5	41.5	41.5	SSE	SE	WNW	480	10	10	10	7:15 A. M.	11 P. M.	.41	
19	29.532	26.2	29.740	30.5	29.950	27.7	26.2	25.5	30	30.5	27.7	27.5	WNW	NW	WNW	459	8	0	0				
20	30.036	26.5	29.916	45.2	29.732	43	26.5	25.5	45.2	43.2	43	41.5	NNE	SE	WNW	238	0	5	10	5 P. M.	10:30 P. M.	.57	
21	29.760	17	29.774	16.5	29.884	14	17	17	16.5	16.5	14	14	NW	WNW	W	415	2	5	0				
22	29.908	10.2	29.832	20	29.836	20.2	10.2	10.2	20	19.7	20.2	20.2	WNW	W	WNW	412	0	4	0				
23	29.750	21.2	29.650	33	29.596	33	21.2	21	33	32.7	33	30.5	W	SW	W	175	2	0	2				
24	29.496	22.7	29.458	32.5	29.584	21	22.7	22.2	32.5	32.5	21	21	NNW	NW	SE	218	3	2	0				
25	29.676	12.7	29.614	26	29.562	30.5	12.7	12.7	26	25	30.5	30.2	WNW	WNW	WNW	512	2	3	0				
26	29.630	27.5	29.622	35.5	29.656	35.2	27.5	27.2	35.5	35	35.2	34.7	NW	WNW	WNW	359	0	7	10				
27	29.644	28	29.000	30.7	29.302	32.2	28	27.5	30.7	30.2	32.2	32	ENE	E	NE	307	9	10	10	5:30 P. M.	12 P. M.	.03	1.25
28	29.376	28.5	29.404	32	29.506	38	28.5	28.2	32	32	38	35.2	WNW	W	W	292	10	10	10	0h. 0m. A. M.	4 P. M.	.15	

MARCH, 1870.

Date.	Barometer (Thermometer attached). 7 A. M. Observed Height.	7 A. M. Thermometer.	2 P. M. Observed Height.	2 P. M. Thermometer.	9 P. M. Observed Height.	9 P. M. Thermometer.	Thermometer (Shade in open air) 7 A. M. Dry.	7 A. M. Wet.	2 P. M. Dry.	2 P. M. Wet.	9 P. M. Dry.	9 P. M. Wet.	Wind. 7 A. M. Direction.	2 P. M. Direction.	9 P. M. Direction.	Velocity in miles for 24 hours ending at 2 P. M.	Clouds. 7 A. M.	2 P. M.	9 P. M.	Rain and Snow. Time of Beginning.	Time of Ending.	Amount of Water. Inches.	Depth of Snow. Inches.
1	29.612	33	29.666	35.5	29.630	33.5	33	32.5	35.5	35.2	33.5	33	WNW	WNW	W	303	8	5	0				
2	29.650	26	29.666	30.2	29.800	24.7	26	25.5	30.2	30	24.7	24.2	WNW	NW	WNW	327	8	3	2				
3	29.914	22.5	29.982	31	30.084	25.2	22.5	22.2	31	30.5	25.2	25.2	WNW	WNW	NNW	494	0	0	0				
4	30.078	20.5	29.940	24	29.830	24.5	20.5	20.5	24	24	24.5	24.5	NNE	E	NNE	207	9	10	10	0:30 P. M.	12 P. M.	.04	.50
5	29.890	24	29.962	28.2	30.050	26.5	24	24	28.2	28	26.5	26.2	NNW	N	N	230	10	10	9	oh. om. A. M.	9:15 A. M.	.02	
6	30.074	23	30.006	30	29.882	28.7	23	22.7	30	29.7	28.7	27.7	N	N	ENE	95	10	10	10	3:30 P. M.	12 P. M.	.07	6.00
7	29.624	30.5	29.616	31	29.702	31	30.5	30	31	30.5	31	30.5	ENE	NE	NNE	199	10	10	10	oh. om. A. M.	10:30 P. M.	.30	
8	29.772	27.5	29.800	33.5	29.854	30.2	27.5	27	33.5	33	30.2	30	NNE	WNW	WNW	129	8	7	3				
9	29.952	25	29.964	32.5	29.984	30.5	25	24.2	32.5	32.5	30.5	30.2	WNW	WNW	W	286	0	3	4				
10	29.990	27	29.828	37.7	29.844	40.2	27	27	37.7	34.7	40.2	37.7	WSW	SW	NW	249	2	3	8				
11	29.978	26	29.900	38	29.816	30.5	26	26	38	35.5	30.5	30	WNW	ESE	NE	198	4	7	10				
12	29.856	28	29.762	27.2	29.626	26.2	28	28	27.2	27.2	26.2	26.2	NE	NE	NE	329	10	9	10	9 P. M.	12 P. M.	.06	3.00
13	29.156	27.2	29.170	26.7	29.480	26	27.2	27.2	26.7	26.7	26	26	NE	NNW	NNW	524	10	10	10	oh. om. A. M.	6 P. M.	.35	
14	29.780	27.2	29.884	37.5	29.948	32.5	27.2	27.2	27.5	37.2	32.5	32.2	NNW	NW	NNW	278	3	5	2				
15	30.042	28.7	30.074	39	29.956	34.7	28.7	28.5	39	35	34.7	33	NNW	ENE	ESE	146	0	2	8				
16	29.410	36.5	29.318	30.5	29.442	26.2	36.5	34.7	30.5	28	26.2	26.2	E	WSW	W	443	10	4	0	5 A. M.	11:45 A. M.	.90	
17	29.328	19	29.262	26	29.394	31	19	19	26	26	31	30.7	WNW	WNW	NW	326	5	8	9	5:30 P. M.	9 P. M.	.01	.12
18	29.564	30	29.750	36	29.932	33	30	30	36	35.5	33	31.2	WNW	N	N	322	9	3	0				
19	30.050	28	30.082	40	30.086	40.2	28	28	40	38.5	40.2	35.2	NW	N	NNW	250	0	0	0				
20	30.044	68.2	29.990	48.7	29.902	43	38.2	36.7	48.7	43.5	43	40.7	NNW	SE	SE	72	9	8	10				
21	29.760	44	29.692	50	29.834	45.2	44	42.2	50	48	45.2	41.5	SE	W	WNW	96	9	9	6	1:45 A. M.	4 A. M.	.04	
22	29.874	40.7	29.872	49	29.922	41	40.7	38	49	41	41	34.5	W	WNW	WNW	194	2	5	3				
23	29.948	35	29.946	37	30.076	31.7	35	31	37	43	31.7	29.5	WNW	NW	WNW	391	2	7	5				
24	30.191	32	30.188	40.5	30.286	30.2	32	31	40.5	30	30.2	30.2	NW	NW	WNW	588	0	0	0				
25	30.344	23.5	30.346	40.5	30.396	35.5	28.5	28.2	40.5	40.5	35.5	30.5	WNW	NW	NW	417	0	0	0				
26	30.420	31	30.384	38.5	30.272	36	31	30.5	38.5	34	36	33.5	NNE	ENE	E	140	2	7	7				
27	29.946	37	29.590	41	29.380	44.2	37	35	41	40	44.2	44	ENE	E	E	589	10	10	10	8 A. M.	12 P. M.	1.13	
28	29.330	44	29.400	45	29.530	42.2	44	43.2	45	43	42.2	41	S	WSW	W	437	9	9	9	oh. om. A. M.	12 P. M.	.11	
29	29.750	40	29.858	48.7	29.980	46	40	37	48.7	43	46	42	NW	N	NNW	193	8	7	10				
30	30.058	41.5	30.134	49.5	30.210	43.7	41.5	38.7	49.5	44.7	43.7	39.5	NNW	ENE	ENE	200	6	8	10				
31	30.178	42	30.164	49.7	30.160	43.5	42	36.2	49.7	43.7	43.5	39.2	NE	ENE	ENE	295	3	7	6				

APRIL, 1870.

Date.	Barometer (Thermometer attached). 7 A. M. Observed Height.	7 A. M. Thermometer.	2 P. M. Observed Height.	2 P. M. Thermometer.	9 P. M. Observed Height.	9 P. M. Thermometer.	Thermometer (Shade in open air). 7 A. M. Dry.	7 A. M. Wet.	2 P. M. Dry.	2 P. M. Wet.	9 P. M. Dry.	9 P. M. Wet.	Wind. 7 A. M. Direction.	2 P. M. Direction.	9 P. M. Direction.	Velocity in miles for 24 hours, ending at 2 P. M.	Clouds. 7 A. M.	2 P. M.	9 P. M.	Rain and Snow. Time of Beginning.	Time of Ending.	Amount of Water. Inches.	Depth of Snow. Inches.
1	30.108	41.5	30.068	51	30.070	44.7	41.5	37.2	51	46.5	44.7	41.7	ENE	ENE	ENE	440	5	9	4				
2	29.902	37.5	29.838	45	29.798	43	37.5	36.2	45	43	43	40	NE	NE	N	543	10	10	10	3:45 A. M.	12 P. M.	.92	
3	29.730	43	29.760	46.2	29.796	39	43	40.5	46.2	44	39	37.5	N	ENE	N	343	10	10	10	Sh. om. A. M.	12 P. M.	.22	
4	29.718	33.5	29.614	34.5	29.542	33.5	33.5	32	34.5	34	33.5	33.2	NNW	N	NW	428	10	10	10	Sh. om. A. M.	12 P. M.	.43	2.50
5	29.480	35	29.662	38	29.772	34.7	35	34	38	37.2	34.7	34	NNW	NE	NNE	310	10	8	10	Sh. om. A. M.	12 P. M.	.87	
6	29.782	36.2	29.818	46.7	29.886	42.7	36.2	35.7	46.7	44	42.7	41.5	WNW	NW	WNW	215	9	8	10	Sh. om. A. M.	9:30 A. M.	.17	
7	29.916	41	29.940	51.7	30.012	50.2	41	39	51.7	48.5	50.2	45	W	WNW	WNW	262	2	8	5				
8	30.048	44.2	30.050	60	30.082	55	44.2	38.5	60	54	55	48.2	WNW	WNW	SSW	112	0	1	0				
9	30.098	48.5	30.102	62.5	30.088	51.2	48.5	41.7	62.5	55.7	51.2	40	WNW	WSW	SSE	65	3	6	0				
10	30.132	45	30.148	56.2	30.090	47.2	45	42.5	56.2	52.7	47.2	44.2	NNE	NE	NE	77	2	7	0				
11	29.960	45.7	29.776	47	29.668	45.7	45.7	41.7	47	44	45.7	41	NE	NNE	N	329	10	10	10	9 A. M.	12 P. M.	.57	
12	29.598	49.5	29.646	64	29.796	49.2	49.5	42	64	55.2	49.2	40	NW	NNE	NW	419	3	2	0	Sh. om. A. M.	5 A. M.	.17	
13	29.934	47.2	29.990	65	30.058	63	47.2	36.5	65	47.5	63	51.5	WNW	NW	WNW	310	0	1	5				
14	30.070	56.5	30.000	72.2	29.984	68.7	56.5	48.7	72.2	61	68.7	59.5	WSW	SE	SW	155	7	5	8				
15	30.020	65.5	30.094	71.2	30.260	46.5	65.5	57	71.2	63	46.5	42.2	NW	ESE	ENE	102	4	3	0				
16	30.346	40	30.286	50	30.250	40	40	38	50	43	40	36	ENE	ESE	ESE	483	8	8	10				
17	30.074	49.5	29.904	43.5	29.800	44.7	40.5	39.5	43.5	43	44.7	44	ENE	ENE	NE	447	10	10	10	9 A. M.	12 P. M.	.80	
18	29.624	46	29.484	51	29.572	45.7	46	45.5	51	49.2	45.7	42.7	NE	ENE	SE	423	10	10	10	Sh. om. A. M.	8:30 P. M.	.44	
19	29.602	43	29.600	47.7	29.640	48	43	40	47.7	42.5	48	44	E	NE	SSE	239	7	8	10				
20	29.626	44.7	29.624	55.5	29.690	52	44.7	42.5	55.5	50.5	52	48.5	WSW	SE	S	167	4	2	3				
21	29.722	45.2	29.736	56.5	29.778	51	45.2	43.7	56.5	51.7	51	49	SSW	SE	SSW	118	6	8	6	7 P. M.	10 P. M.	.01	
22	29.936	45.2	29.960	57.2	30.024	53.2	45.2	41.2	57.2	49.5	53.2	47	NW	NW	S	135	2	4	8				
23	30.046	51.5	30.072	56.7	30.138	51.5	51.5	46	56.7	49	51.5	47.2	W	SE	SE	140	7	4	0				
24	30.126	50	30.062	63	29.954	60	50	47	63	54.5	60	53.2	ESE	SSE	S	114	3	0	0				
25	29.876	52	30.034	49	30.182	51.7	52	49.5	49	43.5	51.7	42.7	N	NNW	NW	292	9	7	0				
26	30.238	46.7	30.174	64	30.146	60	46.7	38.5	64	47	60	49.5	NW	W	WSW	207	0	4	0				
27	30.088	52.2	30.038	71.2	30.000	66	52.2	47	71.2	58	66	57.5	WSW	WSW	SW	191	0	3	0				
28	29.920	63	29.870	79.2	29.950	64.7	63	57.7	79.2	71	64.7	60	WSW	SW	WSW	223	0	2	10	5:50 P. M.	12 P. M.	.47	
29	30.036	48.5	30.004	48	30.006	51.7	48.5	42	48	43	51.7	46.2	N	NNE	NW	226	9	10	3	Sh. om. A. M.	1:15 A. M.	.04	
30	30.012	50.2	30.000	61.5	29.956	55.5	50.2	44	61.5	54	55.5	50	N	SE	SW	77	0	1	0				

MAY, 1870.

Date.	Barometer (Thermometer attached). 7 A. M. Observed Height.	7 A. M. Thermometer.	2 P. M. Observed Height.	2 P. M. Thermometer.	9 P. M. Observed Height.	9 P. M. Thermometer.	Thermometer (Shade in open air). 7 A. M. Dry.	7 A. M. Wet.	2 P. M. Dry.	2 P. M. Wet.	9 P. M. Dry.	9 P. M. Wet.	Wind. 7 A. M. Direction.	2 P. M. Direction.	9 P. M. Direction.	Velocity in miles for 24 hours, ending at 2 P. M.	Clouds. 7 A. M.	2 P. M.	9 P. M.	Rain and Snow. Time of Beginning.	Time of Ending.	Amount of Water. Inches.	Depth of Snow. Inches.
1	29.904	52	29.980	68.2	30.130	58	52	47	68.2	57.2	58	48.5	W	NW	WNW	270	0	0	0				
2	30.236	54.2	30.266	65.5	30.248	59	54.2	43.7	65.5	48	59	48.7	WNW	E	SW	180	0	0	0				
3	30.178	56.2	30.068	63	29.882	60	56.2	43.7	63	52.5	60	51.7	WSW	SW	S	156	3	7	10				
4	29.662	58.2	29.592	79.5	29.778	67.2	58.2	51.5	79.5	69	67.2	60	WSW	NW	NW	106	7	0	7	1 A. M.	3 A. M.	.06	
5	29.976	51	29.942	57.5	29.884	52.2	51	45	57.5	52.5	52.2	49.5	E	SSW	SW	213	9	9	7				
6	29.774	55	29.680	63.5	29.554	59.2	55	51.2	63.5	60	59.2	56.5	W	SE	SE	179	9	9	10	3:30 P. M.	12 P. M.	.16	
7	29.414	56.2	29.444	60	29.496	52.5	56.2	56	60	57.7	52.5	50	ENE	ENE	ENE	121	10	9	10	Oh. om. A. M.	8 A. M.	.08	
8	29.548	50	29.558	54	29.600	52.5	50	49	54	53.5	52.5	52.2	NE	ENE	E	268	10	10	10				
9	29.668	50	29.724	55	29.824	52.5	50	49.7	55	52.5	52.5	51.5	NE	NE	E	188	9	9	10	7:30 P. M.	9:15 P. M.	.02	
10	29.914	47	29.900	48.5	29.934	46.7	47	46.5	48.5	48	46.7	46	E	ESE	ENE	210	10	10	10	2:45 P. M.	7 P. M.	.46	
11	29.878	46	29.828	47.7	29.820	49.2	46	45.5	47.7	46.5	49.2	47.7	NE	ENE	NNE	224	9	10	10	2:45 A. M.	11:15 P. M.	.34	
12	29.832	49	29.848	64	29.856	60	49	47	64	57	60	54	WSW	SW	WSW	128	0	8	7				
13	29.862	54	29.838	68.5	29.850	61	54	49.5	68.5	60	61	55.2	NW	SW	S	154	0	4	6				
14	29.904	58	29.918	75.2	29.958	71.2	58	51.5	75.2	55.5	71.2	56.7	W	NW	NW	135	7	8	0				
15	30.000	67	29.980	81.7	29.958	74.5	67	57	81.7	73	74.5	68.5	W	SSW	WSW	126	0	2	0				
16	29.920	68.7	29.876	82.5	29.862	73.7	68.7	63.2	82.5	74	73.7	68	WNW	WSW	SSE	144	0	2	4				
17	29.954	56	40.076	58.7	30.170	55.2	56	52	58.7	53	55.2	50.5	NE	ENE	NE	261	8	9	7				
18	30.260	53	30.292	61	30.270	58.7	53	48.2	61	49	58.7	50.5	NE	SSE	SSE	115	4	9	0				
19	30.290	55	30.224	73	30.164	66.7	55	51.7	73	62.7	66.7	62.2	WSW	SE	SSW	162	0	0	8				
20	30.152	64	30.122	76.2	30.122	67	64	61	76.2	69	67	62.7	S	W	SSE	126	10	5	6	5:15 A. M.	9 A. M.	.26	
21	30.128	61	30.044	72.2	29.950	65.2	61	59.5	72.2	64.7	65.2	62	NNE	ENE	N	88	8	5	10	5:30 P. M.	11 P. M.	.10	
22	30.112	55	30.166	63.7	30.196	63.5	55	51	63.7	52.5	63.5	58	N	NNE	SSE	229	7	3	0				
23	30.164	55	30.078	66	30.058	65.2	55	51.5	66	60.5	65.2	58.7	NNW	S	SSW	80	9	9	10				
24	29.906	62	29.870	74.7	29.848	69.2	62	58.5	74.7	67	69.2	65.5	WSW	SW	WNW	199	9	9	9	4:15 P. M.	8 P. M.	.04	
25	29.836	66.2	29.832	76.5	29.882	68	66.2	63.7	76.5	65	68	59.5	WNW	WSW	N	110	7	5	3				
26	29.914	58.7	29.930	69.5	29.940	61	58.7	52.5	69.5	58.5	61	56.2	NNW	NE	NE	152	2	5	4				
27	29.926	54.2	29.934	57.5	29.914	56	54.2	49.7	57.5	52	56	49.5	NE	NE	NE	301	9	10	10	3 A. M. 2 P. M.	4:15 A. M. 12 P. M.	.02 .11	
28	29.790	53	29.798	57.2	29.854	59.7	53	49.5	57.2	54.2	59.7	54.7	NNE	NNE	NNE	405	9	9	10	Oh. om. A. M.	12 P. M.	.10	
29	29.928	57	29.984	60.5	30.026	59	57	53	60.5	56.2	59	56.7	NNE	SE	SE	144	9	9	9	Oh. om. A. M.	8 P. M.	.18	
30	30.138	58	30.186	63	30.220	59	58	56	63	60	59	56.5	SE	ESE	ESE	55	10	9	5				
31	30.288	57.5	30.308	70.7	30.264	66.5	57.5	56	70.7	63	66.5	61	ENE	E	SSE	92	9	7	2				

JUNE, 1870.

Date.	Barometer (Thermometer attached). 7 A. M. Observed Height.	7 A. M. Thermometer.	2 P. M. Observed Height.	2 P. M. Thermometer.	9 P. M. Observed Height.	9 P. M. Thermometer.	Thermometer (Shade in open air). 7 A. M. Dry.	7 A. M. Wet.	2 P. M. Dry.	2 P. M. Wet.	9 P. M. Dry.	9 P. M. Wet.	Wind. 7 A. M. Direction.	2 P. M. Direction.	9 P. M. Direction.	Velocity in miles for 24 hours, ending at 2 P. M.	Clouds. 7 A. M.	2 P. M.	9 P. M.	Rain and Snow. Time of Beginning.	Time of Ending.	Amount of Water. Inches.	Depth of Snow. Inches.
1	30.198	63	30.138	70	30.059	66	63	59	70	61.5	66	61.7	W	SW	W	96	3	9	8				
2	30.004	64.2	30.010	72.2	29.980	66	64.2	60.5	72.2	63	66	62	W	SE	ESE	80	9	9	10				
3	29.984	60	30.032	69	30.050	63	60	59	69	65.7	63	61.5	NE	ENE	NE	184	10	8	10	6 A. M.	9:30 A. M.	.03	
4	30.058	62.5	30.076	74.2	30.066	67.5	62.5	61.7	74.2	69	67.5	65.5	NE	ENE	E	190	9	4	10				
5	30.026	61.5	30.000	71	29.982	68.7	61.5	61.5	71	68	68.7	65	NE	E	ESE	159	10	4	10	2:45 A. M.	5 A. M.	.01	
6	29.974	65	29.984	79	30.008	72.5	65	63	79	70.5	72.5	67.2	ENE	ESE	ESE	102	9	3	9				
7	30.024	64.7	30.000	71	29.992	69.5	64.7	64	71	69.5	69.5	68	NNE	NNW	ENE	121	10	9	10	8 A. M. 5 P. M.	9:45 A. M. 9 P. M.	.15 .05	
8	29.984	69.5	30.004	81.2	30.004	76.5	69.5	67.7	81.2	70	76.5	69.7	NW	NW	W	72	4	7	2				
9	29.978	66.2	29.950	71.5	29.950	65.7	66.2	64.7	71.5	68.2	65.7	63.7	NE	ENE	ESE	118	8	4	10				
10	29.910	57.5	29.884	60	29.918	58.7	57.5	56.5	60	59	58.7	57.7	ENE	NE	ENE	307	10	10	10	10:15 A. M.	12 P. M.	1.05	
11	29.892	56	29.870	63	29.924	60	56	55.5	63	62.5	60	59	ENE	NE	ESE	355	10	10	10	oh. om. A. M.	4:15 P. M.	.20	
12	30.030	61	30.114	74.2	30.110	67.2	61	59.5	74.2	64	67.2	62.5	NNE	WSW	SE	128	10	3	2	oh. om. A. M.	2:30 A. M.	.02	
13	30.070	67	30.046	72	30.016	68.2	67	65	72	69.2	68.2	64.7	SE	SE	SE	184	10	7	4	9 A. M.	11:30 A. M.	.03	
14	30.006	68.2	29.972	78.7	29.964	73	68.2	66.5	78.7	71.5	73	68.5	SE	SW	SW	154	10	4	3				
15	29.948	70	29.960	80.5	29.956	72.7	70	67	80.5	73.5	72.7	68.2	SW	SE	WSW	202	2	2	8	6:20 P. M.	9:30 P. M.	.19	
16	29.962	70.5	29.966	81	29.936	74.7	70.5	66	81	72.5	74.7	69.5	W	S	SW	126	5	8	9				
17	29.934	68.5	29.962	73.7	29.996	76.5	68.5	65	73.7	68	76.5	70	WNW	NNE	NNE	99	4	10	3	oh.om. A.M 12 M.	2:30 A. M. 1 P. M.	.09 .04	
18	29.988	69.7	30.014	84.7	30.002	81.5	69.7	64.5	84.7	73	81.5	72.5	WNW	W	W	86	0	2	0				
19	30.030	70.5	30.010	79.7	29.980	77	76.5	66.5	79.7	70	77	68.5	NW	ENE	SE	113	0	2	3				
20	29.914	73.7	29.878	87.5	29.818	78	73.7	68	87.5	75	78	70.5	SW	SSW	WSW	136	4	1	10	10 P. M.	12 P. M.	.08	
21	29.874	66	29.974	71.5	30.084	63.5	66	60	71.5	61	63.5	55	NW	NW	NW	271	2	3	2	oh. om. A. M.	oh.30m. A.M.	.01	
22	30.174	59.5	30.164	73.7	30.164	73.2	59.5	51.2	73.7	61.5	73.2	62.5	WNW	WNW	W	228	3	2	0				
23	30.196	69.7	30.162	82.7	30.146	80.2	69.7	60.5	82.7	69	80.2	70	W	WNW	W	149	3	4	3				
24	30.160	74.2	30.150	90	30.112	82.5	74.2	64.2	90	72.5	82.5	70	WNW	WNW	W	113	0	0	0				
25	30.074	78	30.076	92.5	30.032	85.7	78	66.5	92.5	72.5	85.7	73.5	W	NW	W	128	0	0	2				
26	30.028	81.5	30.052	85	30.088	70.2	81.5	71.5	85	73	70.2	66.7	WNW	N	ENE	145	4	5	10				
27	30.100	71	30.048	81.7	29.994	77.7	71	65	81.7	74	77.7	70.5	NE	SSW	SSE	179	10	1	4	5:45 P. M.	7:30 P. M.	.93	
28	29.932	76.2	29.900	90	29.868	84	76.2	71.5	90	76.5	84	77.7	WNW	WNW	ENE	105	3	3	5	5:15 P. M.	6:30 P. M.	.04	
29	29.892	79.5	29.900	90	29.880	77.2	79.5	73	90	79	77.2	72	N	SSW	SE	125	0	3	0				
30	29.786	73.2	29.758	86.2	29.716	82.5	73.2	68	86.2	78.2	82.5	76.7	W	SSE	WSW	120	0	7	6				

JULY, 1870.

Date.	Barometer (Thermometer attached). 7 A. M. Observed Height.	7 A. M. Thermometer.	2 P. M. Observed Height.	2 P. M. Thermometer.	9 P. M. Observed Height.	9 P. M. Thermometer.	Thermometer (Shade in open air). 7 A. M. Dry.	7 A. M. Wet.	2 P. M. Dry.	2 P. M. Wet.	9 P. M. Dry.	9 P. M. Wet.	Wind. 7 A. M. Direction.	2 P. M. Direction.	9 P. M. Direction.	Velocity in miles for 24 hours, ending at 2 P. M.	Clouds. 7 A. M.	2 P. M.	9 P. M.	Rain and Snow. Time of Beginning.	Time of Ending.	Amount of Water. Inches.	Depth of Snow. Inches.
1	29.718	79	29.850	63	29.948	67	79	73	63	60.5	67	62.2	WNW	NE	ENE	229	8	10	9	1:45 P. M.	3:30 P. M.	.02	
2	30.018	63.5	30.058	70	30.046	68.2	63.5	60.5	70	63	68.2	62.2	NE	E	ESE	143	8	9	10				
3	29.994	63	29.970	60	30.008	63.7	63	58	60	57	63.7	59	NNE	NE	NE	101	10	4	8	7:15 A. M.	8:30 A. M.	.24	
4	30.008	61	30.050	75	30.036	67	61	59.5	75	67.5	67	61.2	NNE	E	ESE	66	10	4	2				
5	30.010	67.7	30.026	75.5	30.042	72.5	67.7	62	75.5	68	72.5	66	ESE	S	S	93	9	9	3				
6	30.046	73.2	30.040	77.7	30.012	74.7	73.2	66.5	77.7	73.7	74.7	70.5	SW	SSE	S	107	4	8	3				
7	29.936	70.5	29.834	77.7	29.782	73	70.5	68.7	77.7	75.2	73	70.7	SSE	SE	SSE	105	10	8	10	4:30 A. M. 3 P. M.	9:15 A. M. 5 P. M.	.01 .26	
8	29.794	66.5	29.840	74.2	29.872	71	66.5	64.2	74.2	69.5	71	65.7	WNW	SW	SE	170	10	4	0	oh. 45 m. A. M.	11 A. M.	1.00	
9	30.020	64.2	30.088	76.2	30.164	76.5	64.2	56.7	76.2	65	76.5	67.2	NW	W	SW	151	0	3	0				
10	30.178	70	30.162	81	30.136	76	70	64	81	68.7	76	67.5	WSW	W	SW	159	0	4	8				
11	30.114	72.5	30.112	85.5	30.014	76	72.5	66.5	85.5	74.2	76	71	WSW	SE	SSE	156	0	4	10				
12	29.924	75.2	29.912	85	29.872	73.5	75.2	71	85	76.7	73.5	70	WSW	W	W	216	4	3	10	1:30 A. M. 6:15 P. M.	3 A. M. 9 P. M.	.04 .18	
13	29.908	72	29.950	82.5	29.934	81	72	69	82.2	73	81	72.7	NW	WNW	SW	152	4	3	0				
14	29.888	73.7	29.868	86	29.864	83.2	73.7	67.5	86	75.5	83.2	73.7	WSW	WSW	SW	172	0	2	3				
15	29.976	73.5	30.022	81	30.042	77.7	73.5	63.7	81	67.5	77.7	68.7	NW	WSW	SSE	122	3	7	8				
16	30.066	72.5	30.070	87	30.034	85	72.5	68.2	87	77.7	85	77	NNE	SSE	SW	129	3	7	8	4:30 P. M.	6 P. M.	.06	
17	29.986	81.5	29.964	93	29.946	85.5	81.5	77	93	83.7	85.5	78	WSW	WNW	WNW	170	4	2	0				
18	29.962	78	29.926	91	29.928	82.7	78	69.5	91	80	82.7	75.5	NW	W	SE	108	0	0	9				
19	29.938	78.2	29.982	88	30.028	79	78.2	73	88	74.2	79	72	NNE	ENE	E	98	9	8	3				
20	30.088	70.2	30.062	78	30.044	79	70.2	65.5	78	71.7	79	73	NE	ENE	SE	199	8	7	9				
21	29.962	75.5	30.014	86.5	30.044	81	75.5	71.7	86.5	70	81	68.2	S	NW	NW	143	4	3	0	4:45 A. M.	7:15 A. M.	.40	
22	30.128	73.7	30.158	82	30.130	75.5	73.7	64.2	82	71.5	75.5	70	N	E	ESE	139	0	0	2				
23	30.144	74.7	30.140	89	30.116	83.7	74.7	70.7	89	78	83.7	76.2	W	S	SW	94	0	2	4				
24	30.140	78	30.076	89.5	30.024	83	78	75	89.5	76.5	83	75.5	WSW	SSW	SW	216	8	4	7				
25	30.050	78	30.048	90	30.054	87	78	70.5	90	79.5	87	78	WNW	WNW	W	230	2	2	5				
26	30.050	78.5	30.062	89.2	29.978	84	78.5	70	89.2	75.2	84	75	WNW	W	W	155	1	7	8				
27	29.944	78.7	29.996	72	30.024	70.5	78.7	71.5	72	71	70.5	66	WNW	ENE	ESE	196	7	9	9				
28	29.994	68.7	29.980	79.7	29.924	78.5	68.7	68.2	79.7	73.7	78.5	74	NE	SE	ESE	135	9	8	8	oh. 15m. A. M. 10:15 P. M.	3:30 A. M. 11:45 P. M.	1.01 .54	
29	29.826	75	29.834	83.5	29.900	79	75	71	83.5	71.5	79	68.7	WSW	W	W	179	5	3	2				
30	29.986	67.5	30.042	75.5	30.090	73.2	67.5	61.5	75.5	66	73.2	65	WNW	WNW	WNW	203	3	4	0				
31	30.164	69	30.130	80.5	30.066	77	69	62	80.5	66.2	77	65	WNW	W	WSW	129	2	0	3				

AUGUST, 1870.

Date.	Barometer (Thermometer attached). 7 A. M. Observed Height.	7 A. M. Thermometer.	2 P. M. Observed Height.	2 P. M. Thermometer.	9 P. M. Observed Height.	9 P. M. Thermometer.	Thermometer (Shade in open air). 7 A. M. Dry.	7 A. M. Wet.	2 P. M. Dry.	2 P. M. Wet.	9 P. M. Dry.	9 P. M. Wet.	Wind. 7 A. M. Direction.	2 P. M. Direction.	9 P. M. Direction.	Velocity in miles for 24 hours, ending at 2 P. M.	Clouds. 7 A. M.	2 P. M.	9 P. M.	Rain and Snow. Time of Beginning.	Time of Ending.	Amount of Water. Inches.	Depth of Snow. Inches.
1	30.036	71	30.024	82.5	29.980	79.5	71	63	82.5	69.2	79.5	69.5	W	SW	WSW	148	2	0	0				
2	29.926	71.7	29.928	85.5	29.956	82.5	71.7	67.7	85.5	74.7	82.5	70	W	W	NW	171	0	4	0				
3	29.986	72	29.992	84.5	29.936	78.7	72	62	84.5	75.5	78.7	74	NE	SE	SE	140	2	8	3				
4	29.908	76.2	29.810	80.5	29.824	72	76.2	73.2	80.5	74.7	72	70.5	S	SE	WNW	156	9	9	4	2:30 P. M.	4:30 P. M.	.36	
5	29.856	67.7	29.852	83	29.876	80.5	67.7	60.2	83	69.5	80.5	70.2	WNW	WSW	SW	136	0	0	0				
6	29.916	76.5	29.968	87.7	29.978	81.2	76.5	69.5	87.7	73	81.2	72	NW	SSE	SE	130	0	0	0				
7	30.050	78.5	30.110	87.2	30.122	79.7	78.5	69.5	87.2	71.7	79.7	71.5	W	SE	SSE	108	0	3	0				
8	30.170	77.5	30.152	84.5	30.164	79	77.5	72	84.5	73	79	74	SSW	SSE	SSE	161	8	4	0				
9	30.072	76	30.124	85.5	30.120	80	76	73	85.5	76.2	80	74.5	SSW	SE	SSW	199	9	2	8				
10	30.116	75.2	30.120	84.5	30.122	74.7	75.2	73.5	84.5	76.2	74.7	73	WSW	SSE	NNW	160	9	9	10	1:15 A. M. 5:30 P. M.	9 A. M. 9:30 P. M.	.16 .09	
11	30.134	75.2	30.144	81	30.158	74.7	75.2	72.5	81	75.7	74.7	72	WSW	SSE	SSW	56	10	10	10	2:45 A. M. 2:30 P. M.	8 A. M. 10:15 P. M.	.29 .87	
12	30.110	75	30.070	85	30.076	77.5	75	72	85	75	77.5	72	SW	WSW	W	125	8	3	8				
13	30.068	75.2	30.030	82	29.960	72.2	75.2	71.2	82	74.2	72.2	70.5	WSW	SSE	SW	91	9	5	10	9 A. M. 6:45 P. M.	11 A. M. 11 P. M.	.02 .70	
14	29.952	66	29.990	66.7	30.018	67.2	60	59	66.7	61.5	67.2	62.2	N	NW	W	169	10	8	0	4 A. M.	11:30 A. M.	.30	
15	30.026	65.2	30.034	75.5	30.036	75.5	65.2	59	75.5	61.5	75.5	65.5	WNW	N	NNW	99	0	3	2				
16	29.982	70.2	29.950	79.2	29.920	74	70.2	63	79.2	64.5	74	65.5	W	SW	S	60	0	4	3				
17	29.896	68	29.912	79	29.884	74	68	61.5	79	68	74	67	W	SSE	SSW	144	0	5	0				
18	29.932	69	30.008	84	30.024	79.2	69	66	84	72	79.2	71.5	W	SW	WSW	187	0	0	0				
19	30.074	73.5	30.062	86	30.016	78.5	73.5	69.2	86	73	78.5	70.5	W	SW	S	139	0	2	0				
20	29.982	76	30.000	86	30.074	72.7	76	70.2	86	74.7	72.7	63	SW	NW	NNW	179	7	6	0				
21	30.150	66	30.168	76	30.182	71	66	57	76	65	71	63	N	E	NE	251	5	4	3				
22	30.200	65.5	30.196	75.5	30.190	71.5	65.5	59.5	75.5	64	71.5	64	NW	N	NNE	90	0	3	0				
23	30.132	63.5	30.072	75	30.056	73	63.5	59.5	75	63.5	73	66	NW	NNW	SSE	74	7	9	10				
24	30.012	68.5	29.984	74	29.964	71.2	68.5	63.2	74	68.7	71.2	69.5	W	ESE	E	90	10	9	10	10:15 A. M.	12 M.	.01	
25	29.964	72	29.926	86.7	29.888	83.7	72	70	86.7	78	83.7	77	SSW	S	SW	102	10	0	10	10:30 P. M.	12 P. M.	.24	
26	30.032	66	30.128	75	30.234	65	66	56	75	59.5	65	54.2	NW	NW	N	241	2	3	2	2:15 A. M.	3:30 A. M.	.03	
27	30.346	60.7	30.340	70	30.296	68.5	60.7	51.2	70	54.5	68.5	59.5	NNE	ENE	SSW	196	0	0	2				
28	30.228	62	30.158	71	30.090	71.7	62	58.5	71	63.7	71.7	66.7	W	SW	SW	81	8	9	3				
29	30.004	69.2	29.918	80.7	29.854	80	69.2	65.7	80.7	74.7	80	74	SW	SW	SSW	175	10	8	7				
30	29.916	71	29.960	77.5	29.988	72	71	63	77.5	64	72	63.5	NW	WNW	W	195	8	5	0				
31	30.030	65	30.050	77.5	30.044	73.2	65	60.5	77.5	64	73.2	63.5	WNW	SW	SSE	73	8	8	7				

SEPTEMBER, 1870.

Date.	Barometer (Thermometer attached). 7 A. M. Observed Height.	7 A. M. Thermometer.	2 P. M. Observed Height.	2 P. M. Thermometer.	9 P. M. Observed Height.	9 P. M. Thermometer.	Thermometer (Shade in open air). 7 A. M. Dry.	7 A. M. Wet.	2 P. M. Dry.	2 P. M. Wet.	9 P. M. Dry.	9 P. M. Wet.	Wind. 7 A. M. Direction.	2 P. M. Direction.	9 P. M. Direction.	Velocity in miles for 24 hours, ending at 2 P. M.	Clouds. 7 A. M.	2 P. M.	9 P. M.	Rain and Snow. Time of Beginning.	Time of Ending.	Amount of Water. Inches.	Depth of Snow. Inches.
1	30.044	66.2	30.058	81.5	30.036	72.5	66.2	60.5	81.5	66.5	72.5	64	W	SSW	SSE	60	0	4	2				
2	30.016	67.2	29.992	80.5	29.972	72.7	67.2	65	80.5	69.5	72.7	68.2	S	SSW	SE	98	8	3	8				
3	29.872	67.5	29.724	79	29.724	74	67.5	63.7	79	70.5	74	70	NNE	ENE	WNW	155	3	9	7				
4	29.722	70	29.760	74.7	29.858	64.7	70	67	74.7	65.5	64.7	61	WNW	WNW	WNW	152	0	2	7				
5	29.976	62	30.042	71.7	30.132	65	62	57	71.7	59.5	65	57.7	WNW	WNW	WNW	192	2	7	0				
6	30.194	60.5	30.184	73.2	30.230	66.7	60.5	53.5	73.2	60.5	66.7	59	NW	NW	NW	151	2	2	0				
7	30.272	61.5	30.258	75.2	30.284	71.7	61.5	55.7	75.2	61	71.7	62.7	NW	NW	SSW	101	0	3	5				
8	30.338	60.7	30.416	69.5	30.400	63	60.7	53.2	69.5	61	63	57.7	NE	ESE	ESE	154	2	8	9				
9	30.346	62	30.262	68.2	30.174	64	62	56.5	68.2	61	64	59.2	ENE	SSW	SSW	173	9	9	3				
10	30.044	60.5	30.000	72	30.060	65.2	60.5	57	72	66	65.2	58	SW	NNW	NW	155	8	9	0				
11	30.150	55	30.152	67.7	30.204	61	55	47.5	67.7	51.7	61	51	N	N	NNW	254	0	2	0				
12	30.280	52	30.284	68	30.322	66	52	47	68	52.7	66	57.5	NNW	NW	SSW	121	0	0	0				
13	30.360	57	30.348	75	30.328	67.7	57	53.7	75	62.5	67.7	61	W	SE	SW	77	0	0	0				
14	30.314	58	30.290	77.7	30.256	69	58	54.2	77.7	61.5	69	61.5	WSW	WSW	SSW	100	0	0	0				
15	30.202	61.2	30.154	75.7	30.128	69.2	61.2	58.5	75.7	68	69.2	65	W	SSE	SSW	141	0	3	0				
16	30.100	68.5	30.120	78.2	30.144	68	68.5	64.7	78.2	63	68	65	WSW	SE	E	140	3	8	7				
17	30.160	64.7	30.102	64.5	30.038	63	64.7	63.2	64.5	63.2	63	61.5	NE	NE	NNE	263	10	9	10	1 A. M.	12 P. M.	.89	
18	29.938	64	29.924	74.7	30.014	66.5	64	61	74.7	65	66.5	56	NNW	N	N	338	9	6	4	3h. 0m. A. M.	2:15 A. M.	.04	
19	30.142	60	30.216	68	30.224	63.2	60	50	68	54.2	63.2	57.7	N	N	SSW	269	0	0	0				
20	30.254	56.7	30.292	71.7	30.326	66.7	56.7	51.2	71.7	56	66.7	58.5	W	N	N	103	0	0	0				
21	30.406	58.2	30.418	69.5	30.384	62	58.2	53.7	69.5	58.7	62	56.5	N	NE	ESE	94	0	0	0				
22	30.344	53	30.316	71	30.356	65.2	53	52	71	60	65.2	60	ESE	WNW	SSW	81	2	0	0				
23	30.150	58.5	30.094	76.7	30.058	70.5	58.5	54.2	76.7	63.7	70.5	63	WSW	SSW	SW	145	3	5	4				
24	30.018	65.5	30.016	83.5	30.004	76	65.5	60	83.5	68	76	66.2	WSW	W	SW	169	5	3	4				
25	30.068	67.5	30.006	84	30.064	73.2	67.5	63	84	66.5	73.2	64.5	WSW	WSW	N	192	6	7	5				
26	30.152	64.5	40.176	72	30.170	69	64.5	59.7	72	60.5	69	62.5	N	NNE	S	168	3	7	4				
27	30.140	63.2	30.092	75	50.088	71.2	63.2	59.5	75	66	71.2	64.5	W	SW	WNW	92	3	7	7				
28	30.118	63	30.136	76.2	30.146	68.5	63	60	76.2	65	68.5	64	NNW	SSE	SSE	95	3	6	6				
29	30.170	64	30.102	71.2	30.168	64	64	62	71.2	66	64	62.2	SSE	SE	ENE	93	9	9	7				
30	30.130	63	29.968	65.7	29.848	70	63	61	65.7	65	70	68	ENE	ENE	SE	124	0	10	10	6:30 A. M.	12 P. M.	.63	

OCTOBER, 1870.

Date.	Barometer (Thermometer attached). 7 A. M. Observed Height.	7 A. M. Thermometer.	2 P. M. Observed Height.	2 P. M. Thermometer.	9 P. M. Observed Height.	9 P. M. Thermometer.	Thermometer (Shade in open air). 7 A. M. Dry.	7 A. M. Wet.	2 P. M. Dry.	2 P. M. Wet.	9 P. M. Dry.	9 P. M. Wet.	Wind. 7 A. M. Direction.	2 P. M. Direction.	9 P. M. Direction.	Velocity in miles for 24 hours, ending at 2 P. M.	Clouds. 7 A. M.	2 P. M.	9 P. M.	Rain and Snow. Time of Beginning.	Time of Ending.	Amount of Water. Inches.	Depth of Snow. Inches.
1	29.818	67.5	29.850	76	29.994	65	67.5	64	76	66.2	65	59.5	W	WNW	NW	183	7	7	5	oh. om. A. M.	2:30 A. M.	.02	
2	30.116	62	30.088	64.5	30.056	61.2	62	57	64.5	59.5	61.2	57.7	ENE	ENE	ENE	288	8	7	9				
3	29.828	61	29.722	60.5	29.754	59.5	61	60	60.5	59	59.5	58	NE	ENE	WNW	366	10	9	9	oh. om. A. M.	1:30 P. M.	.81	
4	29.784	61.7	29.800	70.5	29.874	63.5	61.7	59	70.5	60	63.5	58	WSW	W	W	108	9	3	0				
5	29.950	56	30.000	68	30.080	60.5	56	52	68	59	60.5	56	WNW	NNE	NNE	116	0	7	8				
6	30.192	54.7	30.252	57.7	30.318	53.2	54.7	52	57.7	52	53.2	48	NNE	NE	NNE	232	9	8	8				
7	30.306	48.5	30.284	55	30.260	54.2	48.5	44	55	46.5	54.2	46	NNE	NNE	N	359	6	6	8				
8	30.228	50.2	30.242	63	30.224	57.7	50.2	45.5	63	51	57.7	49	NNW	N	NNW	218	0	0	0				
9	30.220	50	30.194	65.7	30.184	60.5	50	46.5	65.7	56.2	60.5	58	NW	WSW	SW	109	3	5	0				
10	30.184	50	30.162	68.5	30.100	62	50	48	68.5	58.5	62	57.7	NW	S	S	75	0	0	0				
11	30.014	53.7	29.952	64.7	29.886	64	53.7	51.7	64.7	62	64	62.2	WNW	S	SSE	118	0	10	10	2 P. M.	12 P. M.	.30	
12	29.712	65.5	29.638	70	29.704	65.7	65.5	64.5	70	65.7	65.7	62	S	SSE	SW	188	10	8	3	oh. om. A. M.	1:15 P. M.	1.91	
13	29.738	57.5	29.722	62.5	29.846	54	57.5	52	62.5	52.2	54	47.7	W	W	W	112	8	3	4	9:30 A. M.	10:30 A. M.	.01	
14	29.934	50	29.978	61.5	30.064	58	50	46.5	61.5	50	58	51	WSW	WNW	SW	194	0	0	0				
15	30.142	51	30.166	65.5	30.276	60	51	47	65.5	56	60	54	W	SW	WSW	86	2	0	0				
16	30.332	53.5	30.336	71	30.342	63	53.5	50	71	61.2	63	58	W	SSE	SSW	95	0	3	0				
17	30.292	55	30.230	68	30.124	63.5	55	53.7	68	60	63.5	59.7	WSW	SW	S	100	5	7	6				
18	29.812	63	29.864	59	30.020	48.2	63	60.5	59	47.5	48.2	41	SW	WNW	NW	209	9	5	3				
19	30.064	41.5	30.000	54	29.948	53	41.5	37	54	44.7	53	47.5	WNW	S	S	247	0	9	10				
20	29.608	61	29.420	62.2	29.502	51.2	61	60	62.2	60	51.2	48.5	SE	WNW	WNW	197	10	9	9	6:30 A. M.	8:30 P. M.	.93	
21	29.784	47.2	29.844	55	29.928	50.5	47.2	43.2	55	49	50.5	45.7	WNW	SW	W	137	8	8	0				
22	30.086	46.5	30.168	60	30.308	54	46.5	43	60	49.2	54	47	WSW	WSW	WSW	152	0	3	0				
23	30.522	46	30.558	58.5	30.564	55.5	46	41.5	58.5	49.5	55.5	50.7	WNW	NNW	SSW	130	0	0	0				
24	30.542	50	30.486	62	30.400	57	50	46.7	62	50.2	57	52	SSW	SSE	SSW	69	0	3	0				
25	30.250	50.7	30.100	67	30.054	63.5	50.7	50.2	67	59	63.5	57.7	SW	SW	WSW	242	9	9	0				
26	30.108	53	30.230	50.7	30.358	41.5	53	50	50.7	43	41.5	34.2	N	NNE	NNE	259	9	2	0	3:30 A. M.	7:15 A. M.	.12	
27	30.378	33.2	30.242	48	30.004	53	33.2	29	48	44.7	53	50	NNE	SE	SSW	226	7	10	10	1 P. M.	12 P. M.	.06	
28	29.938	53.2	29.944	58.5	29.998	50	53.2	50	58.5	47.5	50	42.7	WNW	NW	WNW	312	2	4	3	oh. om. A. M.	1:30 A. M.	.02	
29	29.982	45.7	30.034	51.5	30.194	41.7	45.7	40.2	51.5	43	41.7	37.2	W	NW	WNW	273	0	3	0				
30	30.250	36	30.188	50	30.000	47.7	36	33	50	40.5	47.7	42	NW	SE	SE	197	2	5	10				
31	29.590	57	29.694	54.5	29.818	48.7	57	52.2	54.5	43.5	48.7	40	W	WNW	W	358	8	3	2				

NOVEMBER, 1870.

Date.	Barometer (Thermometer attached). 7 A. M. Observed Height.	7 A. M. Thermometer.	2 P. M. Observed Height.	2 P. M. Thermometer.	9 P. M. Observed Height.	9 P. M. Thermometer.	Thermometer Shade in open air). 7 A. M. Dry.	7 A. M. Wet.	2 P. M. Dry.	2 P. M. Wet.	9 P. M. Dry.	9 P. M. Wet.	Wind. 7 A. M. Direction.	2 P. M. Direction.	9 P. M. Direction.	Velocity in miles for 24 hours, ending at 2 P. M.	Clouds. 7 A. M.	2 P. M.	9 P. M.	Rain and Snow. Time of Beginning.	Time of Ending.	Amount of Water. Inches.	Depth of Snow. Inches.
1	29.933	43.5	30.018	55	30.040	50.2	43.5	38.5	55	49	50.2	44.2	WSW	WSW	WSW	286	3	0	0				
2	30.018	48.5	29.948	62	29.890	57.7	48.5	45.5	62	54.7	57.7	53	SW	SSE	S	151	5	6	8	1:30 A. M.	2 P. M.	.56	
3	29.685	59.5	29.644	57	29.892	47.7	59.5	57.5	57	50.2	47.7	41.2	SSE	NW	WNW	182	10	5	0				
4	30.022	41	30.006	57.2	30.008	51.5	41	36	57.2	40.7	51.5	45.5	WNW	NW	W	379	0	0	4				
5	30.010	49	30.072	52.5	30.176	49.7	49	45	52.5	49	49.7	44.7	WSW	NW	WNW	200	9	10	0	2 P. M.	4 P. M.	.01	
6	30.336	38.2	30.328	47.7	30.312	48	38.2	34	47.7	43.2	48	43.7	NNE	ENE	NE	186	0	2	8				
7	30.214	44.2	30.196	53	30.262	42	44.2	40	53	45	42	37.5	WNW	NW	NNE	104	9	3	0				
8	30.218	37.5	30.120	57	30.020	54	37.5	34.2	57	49.7	54	37.2	ENE	SSE	S	155	2	4	5				
9	29.870	55.2	29.718	66.5	29.830	48.2	55.2	34.2	66.5	59	48.2	43	SSE	SE	WNW	170	9	4	3	4 P. M.	8 P. M.	.26	
10	30.020	41	30.132	44.5	30.152	39	41	35	44.5	36	39	32.5	WNW	NW	NW	192	5	3	0				
11	30.096	35	29.968	51.2	29.898	45	35	29	51.2	43.7	45	37.7	NW	WNW	W	398	0	5	2				
12	29.752	43.2	29.700	57.7	29.730	47.5	43.2	34.7	57.7	49	47.5	41.2	NW	NW	WNW	227	7	5	0				
13	29.736	42.5	29.730	53.5	29.808	44.5	42.5	39	53.5	50	44.5	42	WNW	NW	NW	394	0	3	0				
14	29.730	43.5	29.526	53	29.526	50	43.5	39.5	53	46	50	45.7	W	ESE	WNW	176	7	9	8				
15	29.688	40	29.700	44.5	29.730	39.2	40	35	44.5	38	39.2	33	NW	NNW	NNW	230	9	6	0				
16	29.806	32	29.946	47.2	30.084	41.5	32	29	47.2	37.2	41.5	36.5	NW	WNW	W	126	0	0	0				
17	30.174	38	30.156	45	30.148	40.5	38	34.2	45	36.7	40.5	35	W	WSW	SW	121	0	4	3				
18	30.012	40	29.900	42.5	29.850	38	40	36.7	42.5	39.5	38	37	WSW	W	NW	121	9	10	7				
19	29.850	29	29.800	31	29.896	33.2	29	28.7	31	28.5	33.2	31	W	WNW	W	287	8	9	10				
20	30.030	30	30.017	43	30.043	42.2	30	29	43	35	42.2	34.5	WSW	WSW	SW	279	7	5	10				
21	30.032	40.5	30.044	50	30.208	43.5	40.5	37.7	50	38.7	43.5	36	SW	W	NW	236	9	9	10				
22	30.250	36.2	30.070	38	29.670	43.5	36.2	31.7	38	36.2	43.5	42	NNE	ENE	ENE	253	10	10	10	3 A. M.	12 P. M.	1.70	
23	29.597	45	29.652	46.2	29.770	40	45	42.5	46.2	41.2	40	36.5	SW	W	W	538	5	8	9	oh. om. A. M.	1:30 A. M.	.09	
24	29.874	36.5	29.950	42.5	30.042	38.5	46.5	31.7	42.5	36.2	38.5	34.2	WNW	WNW	WSW	305	7	5	3				
25	30.060	37	29.900	45.5	29.750	41.7	37	34	45.5	40	41.7	38.2	WSW	WSW	NW	191	0	4	10	10 P. M.	12 P. M.	.15	
26	29.510	39.5	29.638	48.5	29.746	40.7	39.5	38.7	48.5	42	40.7	39	NW	W	WSW	202	10	0	3	oh. om. A. M.	1:30 A. M.	.10	
27	29.740	41	29.788	60	29.958	52.7	41	36.7	60	49	52.7	45.5	WSW	W	W	266	8	2	0				
28	30.134	44.5	30.150	59	30.108	50	44.5	40	59	48	50	43.7	NW	SW	SSE	145	0	0	0				
29	30.028	49	29.944	61.7	30.058	47	49	43.5	61.7	53.7	47	42.7	SW	SW	NNW	70	3	3	10				
30	30.248	43.2	30.278	43.2	30.308	38.5	43.2	37.5	43.2	36.5	38.5	34.5	NW	SE	WNW	102	4	5	0				

DECEMBER, 1870.

Date.	Barometer (Thermometer attached). 7 A. M. Observed Height.	7 A. M. Thermometer.	2 P. M. Observed Height.	2 P. M. Thermometer.	9 P. M. Observed Height.	9 P. M. Thermometer.	Thermometer (Shade in open air). 7 A. M. Dry.	7 A. M. Wet.	2 P. M. Dry.	2 P. M. Wet.	9 P. M. Dry.	9 P. M. Wet.	Wind. 7 A. M. Direction.	2 P. M. Direction.	9 P. M. Direction.	Velocity in miles for 24 hours, ending at 2 P. M.	Clouds. 7 A. M.	2 P. M.	9 P. M.	Rain and Snow. Time of Beginning.	Time of Ending.	Amount of Water. Inches.	Depth of Snow. Inches.
1	30.164	34	30.018	48.5	29.898	42.7	34	31.5	48.5	41	42.7	38.2	WSW	WSW	SW	165	0	3	0				
2	29.648	40.7	29.616	53.7	29.660	46	40.7	36.5	53.7	42.5	46	39	W	WNW	W	250	5	4	8				
3	29.848	43	29.910	46.7	29.942	46	43	35.2	46.7	36.7	46	40	WNW	NW	WNW	279	9	5	8				
4	29.848	42.2	29.664	54.7	29.776	51	42.2	38.7	54.7	46.7	51	44.2	SW	WSW	WSW	171	0	0	0				
5	29.872	45	29.754	53.2	29.544	47.7	45	39.2	53.2	47.5	47.7	46	WNW	ESE	NNE	132	4	5	9				
6	29.508	49.2	29.560	47.2	29.778	41	49.2	45.5	47.2	41	41	37	WSW	WNW	NW	230	8	8	6				
7	29.954	38	29.872	45	29.752	42	38	33.2	45	39.5	42	40.2	W	SE	SE	260	4	3	10	9 P. M.	11 P. M.	.09	
8	29.614	40	29.600	45	29.752	38	40	37.2	45	39	38	34	W	WNW	WNW	163	4	4	0				
9	29.954	36.7	30.030	41.7	30.100	35	36.7	33	41.7	36.5	35	31.7	WNW	NW	NW	393	0	1	0				
10	30.140	31.2	30.116	41	30.184	32	31.2	28.5	41	34.2	32	29	WNW	NW	NNW	233	0	0	0				
11	30.250	27.5	30.262	35.2	30.250	37	27.5	27	35.2	33.5	37	36	NNW	NNE	NNE	231	9	8	10	9 P. M.	12 P. M.	.06	
12	30.050	44.7	29.862	46	29.854	47.5	44.7	44.5	46	46	47.5	47	E	ENE	NE	314	10	10	8	oh. om. A. M.	7 P. M.	1.11	
13	29.900	43.5	29.880	48.5	29.868	45.2	43.5	41.7	48.5	42	45.2	40.5	WNW	WNW	W	170	7	8	6				
14	29.748	41.2	29.684	44	29.738	39.2	41.2	37.7	44	36.5	39.2	32.7	WSW	WSW	W	139	8	7	8				
15	29.778	35.7	29.804	33	29.830	29	35.7	34	33	31.7	29	28.5	WNW	WNW	WNW	349	8	5	8				
16	29.908	23.7	29.938	31	30.000	29.5	23.7	23.7	31	30.7	29.5	29.2	WNW	WNW	NW	429	7	6	1				
17	29.962	26	29.856	32	29.822	31.2	26	25.5	32	31.7	31.2	31	WNW	WNW	WSW	292	8	8	8				
18	29.716	30.2	29.752	37.7	29.902	30.5	30.2	30	37.7	36.5	30.5	30	WSW	WNW	NW	278	7	6	0				
19	30.008	28.5	29.982	38	29.828	41.5	28.5	28.5	38	37.5	41.5	37	WNW	WSW	S	205	8	7	10	9:30 P. M.	12 P. M.	.31	
20	29.412	41.5	29.552	43.5	29.638	39	41.5	40.2	43.5	37	39	33.5	W	WNW	W	211	8	6	10	oh. om. A. M.	8 A. M.	.46	
21	29.748	33.7	29.832	32	30.042	24.7	33.7	26.2	32	27	24.7	19	W	WNW	WNW	300	0	4	6				
22	30.138	17.2	30.136	24	30.098	22.7	17.2	17.2	24	23.7	22.7	22.7	W	WNW	WNW	260	7	6	8				
23	29.936	17	29.810	21	29.838	20	17	17	21	20.7	20	20	NNE	N	NW	184	10	8	7				
24	29.880	15	29.968	20.5	30.056	16	15	15	20.5	20	16	16	NW	NW	WNW	347	0	4	0				
25	30.230	18	30.320	23.5	30.306	24.5	18	17.5	23.5	23	24.5	24.2	WNW	NW	NW	339	8	0	0				
26	30.156	24.5	30.068	29.5	30.154	29.5	24.5	24.2	29.5	29.2	29.5	29	SSW	WSW	W	220	10	8	5				
27	30.230	19.2	30.136	28	30.034	27.5	19.2	18.7	28	27.5	27.5	27.2	W	WSW	SW	255	7	8	10				
28	29.870	29.5	29.708	20.5	29.588	21	29.5	29.2	20.5	20	21	19.7	WSW	NW	N	167	10	10	10	9 A. M.	10 P. M.	.10	2.00
29	29.458	19	29.526	21.5	29.754	12	19	18.5	21.5	20.7	12	12	NNW	NNW	NW	341	10	10	10				
30	29.966	9.5	29.896	21	29.758	27	9.5	9.5	21	20.7	27	26.7	WNW	ESE	SSW	206	9	8	10	7 P. M.	10:30 P. M.	.05	1.00
31	29.678	30.7	29.668	39	29.774	36.7	30.7	30	39	38	36.7	35.7	SW	W	W	247	2	0	0				

REPORT

OF THE

ARCHITECT-IN-CHIEF.

REPORT OF THE ARCHITECT-IN-CHIEF.

DEPARTMENT OF PUBLIC PARKS, No. 265 Broadway,
BUREAU OF ARCHITECT-IN-CHIEF,
Thursday, April 20, 1871.

Hon. PETER B. SWEENY,

President of the Department of Public Parks:

SIR:—In conformity with instructions received from the Vice-President on the 4th ult., I have the honor to submit the following Report of the proceedings and transactions of this Bureau, both during the period between the incoming of the present Commission to office on the 21st day of April, 1870, to that of the regular organization of the Department; and also, for the period subsequent to the aforesaid organization of the Department on the 19th day of May, 1870.

I shall proceed to divide the various kinds of work that have been performed by this Bureau into four separate classes, as follows:

Class A.—Structures that have been executed, or are in progress of execution, within the limits proper of the Central Park.

Class B.—Structures or subsidiary designs that have been

executed, or are in progress of execution, in the various Public Parks and Places, other than the Central Park.

Class C.—Structures which have been designed in accordance with instructions received either from the Vice-President or the Executive Committee, which have been ordered to be executed, and for which the Working Plans, Details, and Specifications are in preparation, and the contracts not as yet awarded.

Class D.—Structures of which, as yet, only the Preliminary Studies of the designs have been submitted to the Vice-President or the Executive Committee.

Class A.——Under this head may be comprised the following items, namely :

No. 1. *The Terrace Bridge*, continuation of certain works in connection therewith.

No. 2. *The Large Stable*, and *Sheds* in connection therewith, on Transverse Road No. 3.

No. 3. *The Dairy*.

No. 4. *The Belvedere*, and its connecting parts.

No. 5. *The Temporary Houses for Carnivora*, north and south of the Museum (Old Arsenal) building.

No. 6. *The Verandahs*, for sundry animals, east of the Museum building, on the Fifth avenue line.

No. 7. *The Bird Houses* in connection therewith.

No. 8. *The Large Menagerie Building* west of Museum.

No. 9. *The Elephant House* in same locality.

No. 10. *The Sheepfold and Barn.*

No. 11 *The Conservatory* at Seventy-fourth street, on an amended and enlarged plan.

No. 12. *The Palæozoic Museum* (discontinued).

No. 13. *The Keeper's Dwelling*, adjacent and belonging to Stable Buildings on Transverse Road No. 3.

No. 14. *Alteration of the Bridle Posts* at entrances to Bridle Roads.

No. 15. *Ombra or Shelter for Passengers* in waiting to take the Park carriages, at Fifth and Eighth avenue entrances on Fifty-ninth street.

No. 16. Museum Building. *Offices of Administration.*

No. 17. Museum Building. *Floral Gallery on Principal Floor.*

No. 18. Museum Building. Temporary accommodation for *Museum of Natural History.*

No. 19. Museum Building. *Meteorological Department*,

No. 20. *Ladies' Cottage*, adjacent thereto.

No. 21. *Mount St. Vincent*, alterations, vault for plans.

No. 22. *Mount St. Vincent*, staircases.

I will now pass on to the next, Class B.——Under this head may be comprised the following items, namely:

No. 23. *The Music Pavilion*, on Madison square.

No. 24. *The Music Pavilion*, on Washington square.

No. 25. *The Music Pavilion*, on Tompkins square.

No. 26. *The Ornamental Iron Settees* in various Parks.

No. 26. *The Shields and Badges* for Park-keepers' uniforms.

No. 27. *The Posts and Railing* of Triangular Park on Canal street.

No. 28. *The Watch and Tool Houses* on the Battery and on Tompkins square.

No. 29. *The Fountain on the Plaza* at Fifty-ninth street and Fifth avenue.

No. 30. *The Large Central Fountain*, on City Hall Park.

The next in order of arrangement, Class C.——Under this head I comprise the following items, to wit:

No. 31. *The Repair Shops*, in connection with Sheds and Stables to be erected on Transverse Road No. 3, C. P.

No. 32. *Drinking Fountain for Horses*, situate on the south-west circle, Central Park, Bronze Finial to complete same.

No. 33. *Cottage for Ladies and Children* on the Battery.

No. 34. *The Deer House*, situate on the East Meadow at the Central Park.

No. 35. *Bridge No. XXIII.*, east of the Old Reservoir, C. P., alterations and additions thereto.

No. 36. *Bridge No. XXVI.*, on the West Drive, north of the New Reservoir, being rebuilt and reconstructed.

The last division comprises Class D,——in which I shall enumerate:

No. 37. *The Large Casino* or *Restaurant* proposed to be erected on the Plateau, east of the Old Reservoir, C. P.

No. 38. *The Ornamental Clock* to be erected on the Oval, at the south end of Mall, C. P.

No. 39. *The Shelter* to protect the rehabilitation of the cast of Crawford's Equestrian Statue of Washington.

No. 40. *Designs for Ornamental Drinking Fountains* for Man and Horse in the Public Parks.

No. 41. *Ornamental Inclosure* to the Statue of Lincoln on Union square.

No. 42. *The Art Museum*, various Preliminary Studies of the Design proposed by the former Board of Commissioners of the Central Park.

No. 43. *The Merchants' Gate*, at the intersection of Fifty-ninth street and Eighth avenue, various Preliminary Studies of the design also proposed by former Board of Central Park Commissioners.

No. 44. *The Music Pavilion* for the Battery.

The following *Schedule* will take up each one of the several heads enumerated above; and briefly specify the kind and quality of work or construction that has been in execution in relation to the same, together with the *list of Plans and Detail Working Drawings* which have been prepared, in order to carry out efficiently the various works of the several specific classes necessitated by the demands of the Structure in question.

Class A.

No. 1. *The Terrace Bridge.* The work done in connection with and towards the completion of this Structure, comprises the execution of the skylight in central panel of ceiling, the lining of the Fountain Basin (which it had hitherto been found impossible to keep tight), with an experimental coating of

Portland cement under Bandmann's patent; the laying the two levels of Lower Esplanade and the Parallellogram at foot of South Steps throughout in concrete pavement (Scharf's patent), in place of the carrying out of the granite or blue-stone mosaic, as originally designed; also the main Central Fountain has been further advanced towards completion, and is now ready for the large polished Westerly granite basin contracted for by Messrs. J. G. Batterson, of Hartford, Conn. There has been considerable difficulty in quarrying the stone for this basin, on account of its enormous size (40 tons). However, I am given to understand the huge monolith has at length been successfully hauled up out of the quarry; and the stone-cutters are fairly at work on the same.

In furtherance of the above work, the following Drawings and Working Details have been prepared:

1. Section of Fountain basin, showing lining, April 24, 1870, *one-fourth full size.*
2. Section of Fountain basin, showing lining, April 25, 1870, *full size.*
3. Section of large Granite basin, granite cutter, *full size.*
4. Duplicate of same, for bronze worker, *full size.*
5. Details of Granite panels, granite cutter, October 29, 1870, *one-eighth full size.*
6. Duplicate of same, for transmission abroad, December 2, 1870, *one-eighth inch and full size.*

No. 2. *The large Stable and Sheds* in connection therewith, on Transverse Road No. 3. On the incoming of the present Commission, the walls of the stable did not average more than four feet above the plinth, except toward the eastern end of the building, where they ranged somewhat higher; and only a portion of the foundations for the large Sheds in connection with and adjacent to the same were laid. The whole of both Structures is now nearly complete, with the exception of the flooring of the lower story of the Sheds, which it is proposed to lay with the Ingersoll pavement. They form a very desirable adjunct to the necessary Offices of Administration on the

Central Park, giving efficient stabling for twenty-six cart-horses; three loose boxes; harness lockers to correspond; ample hay and feed lofts above; and a very large amount of most valuable storage room is afforded by the adjacent sheds, a very great desideratum, taking into account the vast stock of plant needed, and that will further be needed, to fill the various requirements of the Central Park. The masonry of these buildings has been done under contract by Messrs. Jeremiah T. and James B. Smith; the stone-cutting (which is admirable both in material and in execution) has been carried out by Mr. William H. Crommelin; the iron work on the stable by Messrs. James L. Jackson & Brother; and on the sheds by Messrs. J. B. & M. M. Cornell; the roofing and slating by Mr. Francis Dugan; and the carpenter work by our own forces under the direction of Foreman E. C. Treadwell.

In furtherance of the above work, the following Drawings and Working Details have been prepared:

7. No. 64. Cross-section Roof frame. Carpenter, April 27, 1870, *one-fourth inch and one-eighth inch, full size.*
8. No. 65. Elevation of Gates on Eighty-sixth street. Mason, April 28, 1870, *one-half inch and one inch scale.*
9. No. 66. Duplicate of No. 64. Office use, June 29, 1870, *one-fourth inch and one-eighth inch, full size.*
10. No. 67. Duplicate of No. 63. Engineer, C. P., June 6, 1870, *one inch.*
11. No. 68. Duplicate of No. 65. Engineer, C. P., June 8, 1870, *one-half inch and one inch scale.*
12. No. 69. Plans of roof timbers complete. Carpenter, April 24, 1870, *one-eighth inch.*
13. No. 70. Duplicate of same. Engineer, C. P., April 25, 1870, *one-eighth inch.*
14. No. 71. Details of columns and girders. Iron-founder, May 31, 1870, *one-fourth full size.*
15. No. 72. Duplicate of same. Office use, May 31, 1870, *one-fourth full size.*
16. No. 73. Details of main hatch. Mason, June 3, 1870, *one inch.*
17. No. 74. Duplicate of same. Office use, June 5, 1870, *one inch.*
18. No. 75. Details of window in Reservoir wall. Carpenter, C. P., May 8, 1870, *one inch.*
19. No. 76. Duplicate of same. Office use, May 12, 1870, *one inch.*
20. No. 77. Carpenter's details of dormer. Carpenter, C. P., July 18, 1870, *one inch.*
21. No. 78. Large detail of same. Carpenter, C. P., July 19, 1870, *full size.*

22. No. 79. Details of sliding gate. Carpenter, C. P., July 6, 1870, *one inch.*
23. No. 80. Duplicate of same. Office use, July 8, 1870, *one inch.*
24. No. 81. Details of inclosing shutters. Carpenter, C. P., no date, *one inch.*
25. No. 82. Duplicate of same. Office use, no date, *one inch.*
26. No. 83. Details of metal cornice. Iron-founder, April 23, 1870, *full size.*
27. No. 84. Detail of gutter and springer-bolt. Iron-founder, *one inch.*
28. No. 85. Detail of gables of sheds. Mason, May 5, 1870, *one inch.*
29. No. 86. Details of plinth wall, on 86th Street. Engineer, C. P., May 14, 1870, *one inch.*
30. No. 87. Details of iron finial to dormer. Iron-founder, May 20, 1870, *full size.*
31. No. 88. Detail of windows in reservoir wall. Carpenter, C. P., June 1, 1870, *full size and one inch.*
32. No. 89. Duplicate of drawing No. 5. Engineer, C. P., June 29, 1870, *one-eighth inch.*
33. No. 90. Copy of drawing No. 53. Mason and Carpenter, June 29, 1870, *one-eighth inch.*
34. No. 91. Copy of drawing No. 88. Office use, June 29, 1870, *full size and one inch.*
35. No. 92. Copy of drawing No. 76. Mason, June 29, 1870, *one inch.*
36. No. 93. Duplicate of plan 59. Mason and Carpenter, June 30, 1870, *one-fourth inch.*
37. No. 94. Second duplicate of No. 76. Office use, June 30, 1870, *one inch.*
38. No. 95. Duplicate of drawing 61. Mason and Carpenter, June 29, 1870, *one-fourth inch.*
39. No. 96. Duplicate of iron work No. 56. Iron-founder, June 29, 1870, *one-eighth inch.*
40. No. 97. Duplicate of iron work No. 70. Iron-founder, June 29, 1870, *one-eighth inch.*
41. No. 98. Detail of shoe for post, Stable. Iron-founder, August 3, 1870, *one-fourth full size.*
42. No. 99. Detail of iron-work to girder. Iron-founder, August 4, 1870, *three-eighths inch.*
43. No. 100. Elevation of East face, return wall. Mason, August 13, 1870, *one-fourth inch.*
44. No. 101. Elevation and plan of dwarf wall on Reservoir. Mason, August 20, 1870, *one-eighth inch.*
45. No. 102. Duplicate of same. Office use, August 22, 1870, *one-eighth inch.*
46. No. 103. Details of head for leaders. Stone-cutter, September 1, 1870, *full size.*
47. No. 104. Details of gateway, East wall. Mason and Stone-cutter, September 1, 1870, *one inch.*
48. No. 105. Detail of door for gateway. Carpenter, September 2, 1870, *full size.*
49. No. 106. Details of openings to Harness rooms. Mason and Stone-cutter, September 6, 1870, *one-half inch.*
50. No. 107. Duplicate of same. Office use, September 6, 1870, *one-half inch.*
51. No. 108. Detail of leader head. Stone-cutter, September 9, 1870, *full size.*
52. No. 109. Duplicate of same. Iron-founder, September 9, 1870, *full size.*
53. No. 110. Duplicate of drawing No. 104. Office use, September 24, 1870, *one inch.*
54. No. 111. Duplicate of drawing No. 37. Carpenter, C. P., October 18, 1870, *one-eighth inch.*
55. No. 112. Junction of leaders at plinth. Slater, November 12, 1870, *full size.*
56. No. 113. Duplicate of same. Stone-cutter, November 12, 1870, *full size.*

57. No. 114. Duplicate of same. Office use, November 18, 1870, *full size.*
58. No. 119. Duplicate of drawing 48, modified. Iron-founder, December 1, 1870, *one inch.*
59. No. 122. Details of hinges for stable-doors. Iron-founder, December 20, 1870, *full size.*

No. 3. *The Dairy.* This Structure was left in a condition approaching completion by the former Board of Commissioners. During the past year, we have executed the plastering, set in the stained-glass windows, laid the brick and blue-stone pavement outside, completed the wood-work of the interior, including the counters, and done the painting; which leaves the building almost ready for use and occupation.

In furtherance of which work, the following Drawings and Working Details have been prepared:

60. Plan of pavement remodeled. Mason and Stone-cutter, June 15, 1870, *one-fourth inch.*
61. Details of counter crossing same. Carpenter, C. P., June 19, 1870, *one inch.*
62. Details of counter. Carpenter, C. P., June 31, 1870, *full size.*

No. 4. *The Belvedere,* and its connecting parts. This Structure is now rapidly approaching completion, and is one of the strongest and most intrinsically thorough buildings in its construction upon the Central Park. Under the present organization the wing of the main portion has been completed, together with the parapet walls around the Esplanade; the Clock Tower is carrying up to its full height; and the Structure originally designed for the northwest angle has been modified in character, and is being rapidly pushed forward by Foreman Treadwell and his forces. The steps leading down from the Esplanade to the walk around the Lower Reservoir are also completed; and the iron beams supporting the several floors of the main structure are set in their places. No Details have yet been prepared, or Contract made for the clock to be hereafter set in the tower. The balance of the rough stone and

granite work, required to complete the whole, is cut, all save a small reservation, and the few remaining Detail Drawings required are in rapid progress. In connection with this Structure, the mason work of which is looked upon as a model of mechanical excellence by every master-mechanic and expert in the city, I would lay particular emphasis on the service rendered to the Department by Foreman Robert McWhinney, in carrying out the masonry and stone-cutting of the above building so faithfully and thoroughly.

In furtherance of the same, the following Working Drawings and Details have been prepared:

63. Preliminary study of modification northwest angle. Office use, *one-eighth inch.*
64. North, south, east, and west elevations of same. Carpenter, C. P., *one-fourth inch.*
65. Duplicate of north elevation. Mason and Carpenter, *one-fourth inch.*
66. Duplicate of south elevation. Mason and Carpenter, *one-fourth inch.*
67. Duplicate of east elevation. Mason and Carpenter, *one-fourth inch.*
68. Duplicate of west elevation. Mason and Carpenter, *one-fourth inch.*
69. Plan of Verandah and Tower. Mason, C. P., *one-fourth inch.*
70. Duplicate of same. Office use, *one-fourth inch.*
71. Plan of stone piers and parapet wall. Mason, C. P., *one-fourth inch.*
72. Duplicate of same. Office use, *one-fourth inch.*
73. General plan showing iron beams. Iron-founder, *one-eighth inch.*
74. Duplicate of same. Office use, *one-eighth inch.*
75. Section of iron beams. Iron-founder, *full size.*
76. Duplicate of same. Office use, *full size.*
77. Details of stone balcony. Mason, C. P., *one-half inch and full size.*
78. Duplicate of same. Office use, *one-half inch and full size.*
79. Front and side elevation of upper part Tower. Mason, C. P., *one-fourth inch.*
80. Duplicate of same. Office use, *one-fourth inch.*
81. Section of Verandah and Tower. Mason, C. P., *one-half inch.*
82. Duplicate of same. Office use, *one-half inch.*
83. Details of cornices for Verandah. Carpenter, *full size.*
84. Details of Verandah. Carpenter, *full size.*

No. 5. *The Temporary Houses for Carnivora*, north and south of the Museum Building (Old Arsenal). Pursuant to instructions from the Executive Committee, bearing date June 13, 1870, I prepared the Designs for the two houses, which have been carried into execution, as a means of temporary accommodation until more permanent Structures shall have been located

and erected on the Zoological Gardens proposed hereafter to be established in the Central Park. These houses are fifty feet by twenty-two, internal measurement, giving an area to each of eleven hundred superficial feet, and so far are found admirably to answer the purposes for which they were constructed. The house to the north is well stocked with strong new iron cages, containing Carnivora and sundry of the Monkey tribes; that on the south with tropical birds, and also several cages devoted to the Monkeys, both being heated by steam from a supply boiler in the Museum building. A clere-story, running around the entire four sides of each building, gives ample light and means of ventilation in summer, and in all respects these houses are found to serve their purpose very well on ordinary occasions, though on Sundays and holidays, from their necessarily contracted dimensions, they become overcrowded—an evil, however, that will be sufficiently obviated when future and more permanent buildings are erected.

For the construction of the same the following Working Plans and Details have been prepared:

85. No. 1. Plan of foundations. Mason, C. P., July 9, 1870, *one-quarter inch.*
86. No. 2. Duplicate of same. Office use, July 10, 1870, *one-quarter inch.*
87. No. 3. General plan. Carpenter, C. P., July 14, 1870, *one-quarter inch.*
88. No. 4. Duplicate of same. Office use, July 14, 1870, *one-quarter inch.*
89. No. 5. Front elevation. Carpenter, C. P., July 14, 1870, *one-quarter inch.*
90. No. 6. Duplicate of same. Office use, July 21, 1870, *one-quarter inch.*
91. No. 7. Side elevation and cross section. Carpenter, C. P., July 18, 1870, *one-quarter inch.*
92. No. 8. Duplicate of same. Office use, July 21, 1870, *one.quarter inch.*
93. No. 9. Framing of elevations. Carpenter, C. P., July 14, 1870, *one.quarter inch.*
94. No. 10. Duplicate of same. Office use, July 14, 1870, *one.quarter inch.*
95. No. 11. Framing of side elevations. Carpenter, C. P., July 14, 1870, *one quarter inch.*
96. No. 12. Duplicate of same. Office use, July 14, 1870, *one-quarter inch.*
97. No. 13. Details of frame, etc. Carpenter, C. P., July 16, 1870, *full size.*
98. No. 14. Duplicate of same. Office use, July 17, 1870, *full size.*
99. No. 15. Details of clere-story. Carpenter, C. P., July 21, 1870, *one inch and full size.*

100. No. 16. Duplicate of same. Office use, July 26, 1870, *one inch and full size.*
101. No. 17. Details of doors and windows. Carpenter, C. P., July 21, 1870, *one inch.*
102. No. 18. Duplicate of same. Office use, July 22, 1870, *one inch.*
103. No. 19. Details of balcony. Carpenter, C. P., July 23, 1870, *one inch and full size.*
104. Duplicate of same. Office use, July 26, 1870, *one inch and full size.*
105. Details of doors and windows. Carpenter, C. P., July 21, 1870, *full size.*
106. Duplicate of same. Office use, July 21, 1870, *full size.*
107. Details of ventilating shaft in roof. Iron-founder, August 27, 1870, *one inch and full size.*
108. Duplicate of same. Office use, August 28, 1870, *one inch and full size.*
109. Details finial to same. Iron-founder, August 26, 1870, *full size.*
110. Duplicate of above. Office use, August 28, 1870, *full size.*
111. Details of dormer skylight. Carpenter, C. P., September 14, 1870, *one-half inch.*
112. Diagram of plans of dens. Iron-founder, September 30, 1870, *one-quarter inch.*

No. 6. *The Verandahs for miscellaneous animals*, east of the Museum building. In connection with the new system inaugurated by the erection of the above-mentioned Carnivora houses, the Commissioners decided to carry out a line of spacious and well-arranged lean-tos or Verandahs along the east side of the space fronting the Museum building and parallel to the boundary line on Fifth avenue. These Sheds are commodious and sufficiently ornamental and agreeable in form. All the iron work in connection with the dens and cages belonging thereto are of first-class strength and workmanship.

Pertinent to their construction, the following Details and Working Drawings have been prepared:

113. No. 1. Elevation and plan of sheds. Carpenter, C. P., September, 1870, *one-fourth inch.*
114. No. 2. Duplicate of same. Office use, September 7, 1870, *one-fourth inch.*
115. No. 3. Detail of cornice brackets. Carpenter, C. P., September 14, 1870, *full size.*
116. No. 4. Details of cages for ditto. Iron-founder, September 20, 1870, *one inch.*

No. 7. *The Bird-houses in connection therewith.* In order to utilize the old dove-cot standing north of the site of the Conservatory on the east side of the Park, it was decided to cut it in half transversely, and remove the two sections, respectively, to the northeast angle or corner of the space fronting

the Museum building; then, setting the iron work to the front and backing up each with a frame and partition work of timber construction, we have as a result two very serviceable temporary structures for Eagles, Vultures, and other birds of their class

This change required the following Detail Drawings:

117. No. 1. Plan and elevation. Carpenter, C. P., *one-fourth inch.*
118. No. 2. Duplicate of same. Office use, *one-fourth inch.*
119. No. 3 Details for cornices, etc. Carpenter, C. P., *full size.*

No. 8. *The large Menagerie building west of the Museum.* The rapid increase of the collection of animals belonging to the Commission, the necessity to provide suitable accommodation not only for our own stock of ruminantia, but for the numerous specimens loaned or confided to our care during the winter months, rendered the construction of the very serviceable stabling west of the Museum an absolute necessity. This structure, 110 feet long by 47 wide (internal measurement), well flagged, of solid timber construction, and heated by steam, contains on the west side a long range of stalls for Elephants, Rhinoceroses, Buffaloes, etc.; and on the opposite side of the central alley, two tiers of cages and dens. Being a somewhat conspicuous building, the Anglo-Swiss style has been adopted in its design; and it is to a certain extent, and of necessity, ornate; but in all the buildings and structures intended hereafter for Zoological purposes, all superfluous and extraneous ornament is proposed to be resolutely avoided; solidly built, unpretending structures are to be our aim, well lit, well ventilated, well heated, picturesque in their outline and general effect; but endeavoring, also, to steer clear of the architectural whims and eccentricities and absurd reproductions of Egyptian and Grecian temples, that disfigure too many of the gardens in the leading cities of Europe.

In furtherance of the above building, the following Plans and Working Drawings have been prepared:

120. No. 1. Preliminary study of plan and elevation. Office use, *one-half inch.*
121. No. 2. Second study of Design (adopted). Office use, *one-eighth inch.*
122. No. 3. Working drawing, plan, and elevation. Mason and Carpenter, C. P., *one-eighth inch.*
123. No. 4. Transverse section. Carpenter, C. P., *one-fourth inch.*
124. No. 5. Duplicate of same. Office use, *one-fourth inch.*
125. No. 6. General roof plan. Slater, *one-eighth inch.*
126. No. 7. Detail of cornice and bracketing. Carpenter, C. P., *full size.*
127. No. 8. Detail of gable enrichment. Carpenter, C. P., *full size.*
128. No. 9. Detail of tracery in brackets. Carpenter, C. P., *full size.*
129. No. 10. Detail of finials. Carpenter, C. P., *full size.*
130. No. 11. Plan, elevation, and section of cages. Iron-founders, *one-fourth inch.*
131. No. 12. Plan and section of stall division. Carpenter, C. P., *one-fourth inch.*
132. No. 13. Elevation of cages, and support of same. Carpenter and Smith, *one-fourth inch.*
133. No. 14. Elevation showing ornamental colors. Painter, C. P., *one-eighth inch.*
134. No. 15. General framing plan of roof. Carpenter, C. P., *one-fourth inch.*
135. No. 16. Details of doors. Carpenter, C. P., *one-half inch.*

No. 9. *The Elephant-house*, also adjacent to the Museum, provides suitable quarters for an animal always an immense source of attraction whenever on exhibition, and hitherto almost hidden from view in his crammed and close quarters in the damp basement of the old Arsenal. The present building will serve its temporary purpose very well, but in future zoological arrangements we must bear in mind we cannot well overdo the matter of strength and solidity in the permanent building or buildings hereafter constructed for these animals. In the new elephant house erected a few years since in the Regent's Park Gardens, at London, the doors and stall divisions were deemed by the architect of ample strength, but its occupant proved the contrary, for, the very first night of removal to his new quarters, he smashed all around him with as much ease as though built of pipe-stems. In recapitulation, on Nos. 5, 6, 7, 8, and 9, of class A, I must not omit to state that all the Carpentry and timber construction have been carried out by our own forces,

as well as the Masonry, and in all the arrangements we have been admirably seconded by Foreman Treadwell, and also General Foreman Gayte. The ornamental iron-work has been done by James L. Jackson & Brother; that of the cages, etc., by James G. Dimond; and the roofing generally by Mr. Francis Dugan.

The Elephant-house required the following Detail and Working Drawings:

136. No. 1. Plan, elevation, and section Elephant-house. Carpenter, C. P., *one-fourth inch.*
137. No. 2. Duplicate of same. Office use, *one-fourth inch.*
138. No. 3. Details of roof. Carpenter, C. P., *one-fourth inch.*

No. 10. *The Sheepfold and Barn.*—On the 2d of July last I received orders from the Executive Committee to prepare Designs and Plans for suitable habitations and winter accommodation for the Park sheep; the former quarters being so close and confined that the detriment to the health of the animals was most serious, packed as they were into a confined space with insufficient room, no light, and worse ventilation. In fact, from this cause several valuable specimens were lost to the Commission. At first a structure of wood was contemplated, but wiser considerations prevailed, and a substantial, well-ventilated building of brick and stone is now rapidly approaching completion, which obeys many of the canons laid down by the Commissioners as to what should be the prevailing characteristics of all buildings for animals or zoological purposes in the Park. The Sheepfold is constructed of hollow brick walls, to exclude damp, consisting of an outer twelve-inch and an inner eight-inch wall, separated by a four-inch cavity, faced with best Colobaugh brick laid in black mortar, and trimmed occasionally with the rough bastard granite of this island, and in

the more ornate portions with blue and gray Malden stone. It comprises four elements: the Sheepfold proper, the adjacent Barns and lofts for storage of feed, the Residence of the Keeper connecting the two wings, and the Loggie at either extremity commanding a good view in range of the animals in their fold—to which Loggie and their balconies the public are to be admitted. The Sheepfold proper consists of two wings, twenty feet in the clear width, by twenty feet in height, down which run two lines of galvanized iron feed-racks and mangers, sufficient, with the lambing pens, for two hundred and eighty to three hundred sheep; adjacent to each division, and separated by openings with fire-proof iron doors and shutters, are the Barns for the storage of feed and hay, each Barn thirty feet by twenty clear, internal measurement, and in two stories, giving ample storage room of two thousand four hundred superficial feet. Over an entrance archway for the road leading up from Transverse Road No. 1 is situated a Dwelling for the Chief Sheep-keeper and his men, also fire-proof, separated by solid brick walls from the rest of the structure, floored with brick arches in cement springing from iron beams, and containing a kitchen, scullery, living-room, and six bedrooms, with a lumber or storage loft yet in top of roof. Towards the Park, the two wings of the Sheepfold proper terminate in two open Loggie or Arcades, eighteen feet by fourteen feet each, joining on a balcony overlooking the green sward adjacent to the building, and commanding a view of the sheep feeding or reposing inside. These Loggie are trimmed with arcade work of blue and gray Malden stone, further enhanced by small columns of polished Scotch red granite, to form an agreeable architectural relief to the otherwise sombre and monotonous character of the building; they will each be

floored with a pavement of Minton's encaustic tile; and on screens running mid-way of their length will be exhibited oil paintings and photographs of all the various breeds of sheep; and on side-tables, under the microscope, specimens of the various kinds and qualities of wool, illustrating their texture, fibre, etc. A visit to this building, when complete in its organization, will thus not only interest the casual visitor to the Park, but prove a vehicle of education to the farmer and the student in industrial economy.

The rough Stone-work, the Carpentry, and the Brick-work have been carried on by our own forces in charge of Foremen Smith and Treadwell. The cut stone is furnished by the Bigelow Blue-stone Company, executed with the view of contrasting the blue and gray Malden stone. The Iron-work has been contracted for by the firm of J. B. & M. M. Cornell, and the slating has been confided to Mr. Francis Dugan. The Wings are already built; the Barn and Keeper's dwelling approaching completion, and the Loggie both in progress.

In furtherance of the above work, the following Plans and Detail Working Drawings have been prepared:

139. No. 1. Preliminary study of plans (signed by the President), September 7, 1870, September 4, 1870, *one-eighth inch.*
140. No. 2. Preliminary front elevation (signed by the President), September 7, 1870, September 6, 1870, *one-eighth inch.*
141. No. 3. Preliminary side elevation and section (signed by the President), September 7, 1870, September 3, 1870, *one-eighth inch.*
142. No. 4. Diagram plan for Excavator, Engineer and Mason, C. P., September 8, 1870, *one-eighth inch.*
143. No. 5. Plan, foundation walls at plinth. Mason, C. P., September 9, 1870, *one-fourth inch.*
144. No. 6. General plan of walls. Mason, C. P., September 10, 1870, *one-fourth inch.*
144a. No. 7. Duplicate of same. Office use, September 21, 1870. *one-fourth inch.*
145. No. 8. Front elevation (one-half). Mason, C. P., November 8, 1870, *one-fourth inch.*
146. No. 9. Duplicate of same. Office use, November 18, 1870, *one-fourth inch.*
147. No. 10. Transverse elevation developed. Mason, C. P., November 8, 1870, *one-fourth inch.*

147a. No. 11. Duplicate of same. Office use, November 22, 1870, *one-fourth inch.*

148. No. 12. Rear elevation developed. Mason, C. P., November 8, 1870, *one-fourth inch.*

149. No. 13. Duplicate of same. Office use, November 22, 1870, *one-fourth inch.*

150. No. 14. Side and rear elevation of barn. Mason, C. P., November 8, 1870, *one-fourth inch.*

151. No. 15. Duplicate of same. Office use, November 22, 1870, *one-fourth inch.*

152. No. 16. Details, walls and entrance gables. Mason, C. P., October 10, 1870, *one-half inch.*

153. No. 17. Duplicate of same. Office use, November 22, 1870, *one-half inch.*

154. No. 18. Details of loggia. Mason, C. P., October 10, 1870, *one-half inch.*

155. No. 19. Duplicate of same. Office use, November 22, 1870, *one-half inch.*

156. No. 20. Details of barns and dwelling. Mason, C. P., November 10, 1870, *one-half inch and one-fourth inch.*

157. No. 21. Duplicate of same. Office use, November 22, 1870, *one-fourth and one-half inch.*

158. No. 22. Details of plinth. Mason, C. P., November 25, 1870, *full size.*

159. No. 23. Detail of bevel plinth. Mason, C. P., November 25, 1870.

160. No. 24. Details of lintels, keys, &c. Mason, C. P., November 26, 1870, *full size.*

161. No. 25. Duplicate of same. Office use, November 27, 1870, *full size.*

162. No. 26. Details of roof trusses. Carpenter, C. P., November 30, 1870, *one-half inch.*

163. No. 27. Duplicate of same. Office use, December 1, 1870, *one-half inch.*

164. No. 28. Plan of finished roofs. Slater, March 30, 1871, *one-fourth inch.*

165. No. 29. Duplicate of same. Office use, March 31, 1871, *one-fourth inch.*

166. No. 30. Details of Scotch granite columns. Stone-cutter, December 5, 1870, *one-half inch.*

167. No. 31. Duplicate of same. Mason, C. P., December 5, 1870, *one-half inch.*

168. No. 32. Details of bands and voussoirs. Stone-cutter, November 26, 1870, *one-half inch.*

169. No. 33. Details of iron ventillating bricks. Iron-founder, November 29, 1870, *full size.*

170. No. 34. Details of arches of loggia. Stone-cutter, November 10, 1870, *one-half inch.*

171. No. 35. Details of plinth on all sides. Mason, C. P., October 13, 1870, *one-fourth inch.*

172. No. 36. Details of voussoirs. Stone-cutter, October 18, 1870, *full size.*

173. No. 37. Details of capitals of columns. Stone-cutter, October 20, 1870, *full size.*

174. No. 38. Details of arches of loggia. Stone-cutter, October 29, 1870, *full size.*

175. No. 39. Details of side arch of loggia. Stone-cutter, October 29, 1870, *full size.*

176. No. 40. Details of panels of loggia. Stone-cutter, October 30, 1870, *full size.*

177. No. 41. Details of arch over balcony. Stone-cutter, October 30, 1870, *full size.*

178. No. 42. Details of iron beams, etc. Iron-founder, November 2, 1870, *one-fourth, one-half, and one inch.*

179. No. 43. Details of iron ventilator. Iron-founder, November 2, 1870, *one-fourth, one-half, and one inch.*

180. No. 44. Duplicate of same. Slater, November 3, 1870, *one-fourth, one-half, and one inch.*

181. No. 45. Duplicate of drawing No. 43. Mason, C. P., November 3, 1870, *one-fourth, one-half, and one inch.*

182. No. 46. Details of cornice of loggia, etc. Carpenter, C. P., March 13, 1871, *full size.*

183. No. 47. Details of entrance gate and lean-to. Carpenter, C. P., March 16, 1871, *full size and one-fourth full size.*

184. No. 48. Diagram of roof, showing colors. Slater, March 30, 1871, *one-fourth inch.*

No. 11. *The Large Conservatory* at Seventy-fourth street on an amended and enlarged plan.—It has been deemed advisable to reconsider and remodel the design for the Conservatory entered upon by the Old Board of Commissioners, so as to obtain greater picturesqueness of outline, more extended height inside, and a greater variety of trees and plants on exhibition; for this reason, the Main Structure has been raised, enlarged by a transept, which gives additional life to the view in perspective from the west side of the Seventy-fourth street lake, and in order to accommodate a pleasing variety of more temperate plants than those produced in the major central building, or Palm-house proper, two supplementary Rotundas have been added to the design, at the north and south ends, which will hold a fine display of floral contrast. I have been guided in the preparation of this design by many excellent suggestions, most kindly given by Dr. Joseph Dalton Hooker, Superintendent of the Royal Gardens, at Kew, in England. In making recent additions to the famous Palm-house in those gardens, Dr. Hooker informs me that, attended by his foreman, he spent two years and over investigating all the leading Conservatories of Europe. He is acknowledged to be the first and best authority on this subject in the world, and I respectfully suggest to you, Sir, the expediency of putting me in full and unreserved communication with so eminent an expert, that we may as well profit by the large experience he has gained, and start (as it were) from the standpoint of his knowledge acquired in so many and so thorough investigations. We shall be all the better enabled so to do, as owing to the nature of the foundations, part of which are on solid rock, and part of which are on quicksand, we must take considerable care and pains during the present summer in making the substructure

of that Conservatory proof against all and any liability to fracture by settlement, which would endanger the construction of the upper portion of the work, and cause the city a loss of thousands of dollars, by the risk and exposure of the therein-contained valuable tropical plants. The Engineer-in-Chief will report to you more in detail as regards these foundations, and he assures me he will exert his very best professional ability to second our efforts in getting in these walls so securely, that no hereafter casualty of the kind alluded to need be feared. In my opinion, we should construct the main portion of cast and wrought iron, carrying the glass in wooden frames, so as to avoid all chance of fracture through expansion or contraction; the glass itself will be the ribbed or fluted heavy glass, three-sixteenths of an inch in thickness, the light transmitted through which is found to be the most salutary for the health of plants. Eighteen feet above the floor a gallery six feet wide will run all round the building, connecting more immediately with the Seventy-fourth street entrance on Fifth avenue, and ample means will be taken to secure a perfect and homogeneous system of ventilation throughout the whole. I propose, moreover, in connection with the heating apparatus, a double system of boilers and steam supply, to obviate all risk of any accident or stoppage by the giving out of the one actually in use. Underneath the whole area of the Conservatory will extend a hall of 22,500 feet superficial area, and seventeen feet in the clear height, amply and sufficiently lit on all four sides, for horticultural exhibitions of fruit and flowers, and below that again, a basement or cellar extending over the same area for working purposes. The foundations have been carried on during last fall and the present spring by our own men under charge of Foreman William Kearns, part being on

solid rock, and towards the southerly end on soft ground, part quicksand; great care is being taken in putting in said foundation.

The following Designs, Plans, and Detail Drawings have thus far been completed for the Structure in question:

185. No. 1. General plan of Conservatory (approved by President), September 9, 1870, *three thirty-seconds of an inch.*
186. No. 2. Elevation of west façade. Office use, September 12, 1870, *three thirty-seconds of an inch.*
187. No. 3. Transverse section. Office use, September 14, 1870, *three thirty-seconds of an inch.*
188. No. 4. Sketch of façade on Fifth avenue. Office use, September 12, 1870, *three thirty-seconds of an inch.*
189. No. 5. Duplicate of plan for transmission to Dr. Hooker, at Kew Gardens, December 11, 1870, *three thirty-seconds of an inch.*
190. No. 6. Duplicate of west elevation, ditto, February 13, 1871, *three thirty-seconds of an inch.*
191. No. 7. Duplicate of transverse section, ditto, February 15, 1871, *three thirty-seconds of an inch.*
192. No. 8. General plan, sub-foundations. Engineer, C. P., March 13, 1871, *one-eighth inch.*
193. No. 9. General plan, foundation of rotundas. Engineer, C. P., March 14, 1871, *one-eighth inch.*
194. No. 10. Duplicate of No. 8. Mason, C. P., December 9, 1870, *one-eighth inch.*
195. No. 11. Duplicate of No. 9. Mason, C. P., December 10, 1870, *one-eighth inch.*
196. No. 12. Duplicate of No. 1, for Mr. Pilat, December 8, 1870, *three thirty-seconds of an inch.*
197. No. 13. Duplicate of No. 2, for Mr. Pilat, December 8, 1870, *three thirty-seconds of an inch.*
198. No. 14. General plan above basement floor. Mason, C. P., March 10, 1871, *one-eighth inch.*
199. No. 15. General plan rotundas ditto. Mason, C. P., March 11, 1871, *one-eighth inch.*
200. No. 16. Duplicate of No. 14. Office copy, *one-eighth inch.*
201. No. 17. Duplicate of No. 15. Office copy, preparation, *one-eighth inch.*
202. No. 18. General transverse section. Mason, C. P., March 10, 1871, *one-fourth inch.*
203. No. 19. Duplicate of same. Office use, October 26, 1870, *one-fourth inch.*

No. 12. *The Palæozoic Museum* (discontinued).—The foundations for the design of this edifice, as adopted by the former Board of Commissioners, having reached the ground level, it was deemed expedient to prepare a new set of Plans adapted

to these foundations, to comprise a building of more extended usefulness and varied character, accommodating a Department of Palæontology, of Economic Geology, and of Pisciculture; but on working out these Plans and procuring Estimates, this Board have determined to devote the large sum the carrying out of this structure would involve to other more pressing and more immediately useful purposes. To obtain this result, the following additional Drawings were found necessary:

204. No. 1. General ground plan. Office use, October 14, 1870, *one-eighth inch.*
205. No. 2. Plans of galleries and basement. Office use, October 18, 1870, *one-eighth inch.*
206. No. 3. Elevation of west front. Office use, October 17, 1870, *one-eighth inch.*
207. No. 4. Elevation of south front. Office use, November 8, 1870, *one-eighth inch.*
208. No. 5. Transverse section. Office use, November 4, 1870, *one-eighth inch.*

No. 13. *The Keeper's Dwelling* and sundry additions to Sheds and Stables on Transverse Road No. 3.—This structure, although immediately connected with them, was left excluded from the Mason's Contract for Sheds and Stables, nor were any of the necessary Plans prepared. On the completion of the Stable building proper, its obvious want became more apparent, and I received instructions from the Vice-President, in December last, to prepare the needful Plans and Working Drawings forthwith. Being closely connected and forming an adjunct to the existing Stable, the same style and treatment is thereby a *sine qua non.* The stone is now being cut by our own workmen, and the building progressing rapidly. Some further details in connection with the Stable are also being carried out, and we are proceeding to turn the west return of the Shed building, where it abuts against the Keeper's Dwelling, into an additional Stable for cows.

Up to the present date, the following Plans and Working Details have been prepared in relation therewith:

209. No. 113. Plan of first and second floors. Mason, C. P., December 3, 1870, *one-fourth inch.*
210. No. 114. Duplicate of same. Office use, December 6, 1870, *one-fourth inch.*
211. No. 115. Front and east side elevation. Mason, C. P., December 3, 1870, *one-fourth inch.*
212. No. 116. Duplicate of same. Office use, December 9, 1870, *one-fourth inch.*
213. No. 117. West front and sections. Mason, C. P., December 9, 1870, *one-fourth inch.*
214. No. 118. Duplicate of same. Office use, December 7, 1870, *one-fourth inch.*
215. No. 120. Details of dormers. Mason, C. P., April 4, 1871, *one inch.*
216. No. 121. Duplicate of same. Office use, April 4, 1871, *one inch.*
217. No. 123. Detail of small dormer, north front. Mason, C. P., April 5, 1871, *one inch.*
218. No. 124. Duplicate of same. Office use, April 5, 1871, *one inch.*
219. No. 125. East elevation of sheds. Mason, December 12, 1870, *one-fourth inch.*
220. No. 126. North elevation sheds. Mason, C. P., December 12, 1870, *one-fourth inch.*
221. No. 127. Additional framing of stable roof. Carpenter, C. P., January 4, 1871, *one-fourth inch.*
222. No. 128. Elevation of stall-division. Carpenter, C. P., January 4, 1871, *one-half inch.*
223. No. 129. Detail of east gate. Carpenter, C. P., January 5, 1871, *one inch.*
224. No. 130. Details of stable doors. Carpenter, C. P., December 28, 1870, *one inch.*
225. No. 131. Mouldings of same. Carpenter, C. P., December 29, 1870, *full size.*
226. No. 132. Leader heads. Roofer, February 3, 1871, *full size.*
227. No. 133. Duplicate of same. Mason, C. P., February 3, 1871, *full size.*
228. No. 134. Elevation of cow stable. Mason, C. P., April 14, 1871, *one-fourth inch.*
229. No. 135. Plan of same and stalls. Mason, C. P., April 15, 1871, *one-fourth size.*
230. No. 136. Duplicate of both. Office use, April 17, 1871, *one-fourth size.*

No. 14. *Alteration of the Bridle-Posts* at the entrance to Bridle Roads.—The former bridle-posts of oak set into blue-stone bases, having opened by the heat of the sun, and having become rotten and unserviceable by reason of the moisture and wet admitted at all these checks, it has been determined to replace them with others, and of a more ornamental character, in iron—to suit which the outline of the blue-stone sockets will have to be modified by our own masons. The castings of these new bridle-posts are now being prepared by the Composite Iron Works, under the direction of Mr. Irah Chase.

For these new posts the following Working Plans have been prepared:

231. No. 1. Studies for three designs. Office use, February 6, 1871, *one inch.*
232. No. 2. Detail of adopted design. Iron-founder, February 27, 1871, *full size.*
233. No. 3. Profile of new stone base. Mason, C. P., March 2, 1871, *full size.*

No. 15. *Ombra or Shelter for Passengers in waiting.*—The increasing popularity of the Park carriage service has necessitated the erection of these structures at the Fifth and Eighth avenue entrances to the Park, on Fifty-ninth street, where an agreeable resting-place will be afforded to passengers awaiting their turn. They are light, ornamental structures of wood and iron. The roofs, which overhang considerably, to afford shade, are supported by iron columns, the capitals of which are each practicable flower-baskets, and will be kept always supplied with an ever-varying series of cannæ, and other pendulous and ornamental plants. They are rapidly becoming completed—the iron-work by the Composite Iron Company—the wood-work by Messrs. Smith & Crane.

The following plans and Working Drawings have been prepared for the same:

234. No. 1. Preliminary study (approved by Vice-President), February 11, 1871, *one-half inch.*
235. No. 2. Plan, section, and elevation. Iron-founder, February 16, 1871, *one-half inch and one-eighth full size.*
236. No. 3. Duplicate of same. Office use, February 20, 1871, *half inch and one-eighth full size.*
237. No. 4. Details, wrought and cast iron. Iron-founder, February 25, 1871, *full size.*
238. No. 5. Details, wrought and cast iron. Iron-founder, February 27, 1871, *full size.*

No. 16. *Museum Building, the New Offices of Administration.*—Early last summer we received instructions from the Executive Committee to remodel the principal floor of the Museum Building, so as to afford the Superintendent, Property, and Disbursing Clerks better facilities, and more increased accommodation;

but the work could not be proceeded with till the completion of the Carnivora houses, and the consequent removal of the animals and their cages, which encumbered the whole south end of the building. As soon as the space was free, the whole floor was relaid with new and wholesome planking, and the Office arrangements entirely remodeled.

No. 17. *Floral Gallery* on principal floor. In connection with same, and intermediate to the series of offices at north and south ends, a range of concentric flower-stands is being arranged, flanked by ornamental vases, to be filled with a handsome display of floriculture, and the statue of Columbus, by Miss Emma Stebbins, is about being removed, and placed in juxtaposition with the above.

No. 18. Temporary accommodation for the *Museum of Natural History.*—On the two upper floors the former cases have all been remodeled and removed, and the recent acquisitions of the Museum Association placed on exhibition in a scientific and coherent shape.

No. 19. The *Meteorological Department* has undergone the process of remodeling, and the ingenious and delicate instruments in charge of, and devised by Mr. Draper, are being placed in cases more suitable for purposes of exhibition.

For all the above work the following Detail Drawings have been required and furnished:

239. No. 1. Plan of offices on first floor. Carpenter, C. P., *one-eighth inch.*
240. No. 2. Duplicate of same. Office use, *one-eighth inch.*
241. No. 3. Detail of staircase to upper floor. Carpenter, C. P., *one-half inch.*
242. No. 4. Details of architraves and bases. Carpenter, C. P., *full size.*
243. No. 5. Elevation and detail of pedestals. Carpenter, C. P., *one inch and one-fourth inch.*
244. No. 6. Plan and elevation of flower stand. Carpenter, C. P., *one-fourth inch.*

245. No. 7. Details of cases for meteorological instruments Carpenter, C. P., *one-half inch.*
246. No. 8. Details of standards for same. Iron-founder, *full size.*
247. No. 9. Details of iron railing, etc. Iron-founder, *full size.*
248. No. 10. Cases for Museum of Natural History. Carpenter, C. P., *one inch.*

No. 20. The *Ladies' Cottage*, for the convenience of Ladies and Children, is now being completed, and will be found very serviceable to the numerous visitors to the Museum Building and the many new attractions in and around it.

For this Structure the following Working Plans have been prepared:

249. No. 1. General plan and elevation. Carpenter, C. P., *one-fourth inch.*
250. No. 2. Duplicate of same. Office use, *one-fourth inch.*
251. No. 3. Plan of foundation walls. Mason, C. P., *one-fourth inch.*
252. No. 4. Details of cornices and brackets. Carpenter, C. P., *full size.*
253. No. 5. Details of balustrade. Carpenter, C. P., *full size.*
254. No. 6. Elevation and section of chimney-cap. Iron-founder, *one-fourth inch, full size.*

No. 21. *Mount St. Vincent.*—In connection with the offices of the Engineer-in-Chief, a fire-proof vault has been constructed for the better preservation of valuable drawings and documents in that officer's charge; and also

No. 22. A staircase additional to those formerly in the building has been constructed, to give communication with additional exhibition rooms from the Chapel, and thereby increase the area of Museum accommodation in that department.

For these two last items the following Working Drawings have been prepared:

255. No. 1. Plan elevation and section of vault. Mason, C. P., *one-fourth inch.*
256. No. 2. Duplicate of same. Office use, *one-fourth inch.*
257. No. 3. Plan and detail of staircase. Carpenter, C. P., *one-fourth inch.*
258. No. 4. Plan and elevation of lower staircase. Carpenter, C. P., *one-fourth inch.*
259. No. 5. Duplicate of same. Office use, *one-fourth inch.*

I now proceed to specify the kind and quality of work or construction that has been executed, under the heading of

Class B.

Nos. 23, 24, and 25. The *Music Pavilions*, situated respectively on Madison square, on Washington square, and on Tompkins square. I received instructions from the Commissioners about the 10th of May, 1870, to prepare suitable designs for these structures. Out of four studies, the above three were selected and carried out; the carpentry and iron-work by Mr. James Corwith, of Long Island City; the painting by Mr. William Douglass. That on Madison square was the earliest completed, and, *seriatim*, those on Washington and Tompkins squares. These stands are so planned as to contain beneath the platform a storage space for the seats and iron music desks.

They required the preparation of the following Working Drawings:

260. No. 1. Study, design A. Office use, May 13, 1870, *one-fourth inch.*
261. No. 2. Plan of design A. Office use, May 13, 1870, *one-fourth inch.*
262. No. 3. Study, design B. Office use, May 15, 1870, *one-fourth inch.*
263. No. 4. Elevation, design C. Office use, May 15, 1870, *one-fourth inch.*
264. No. 5. Plan of B and C. Office use, May 15, 1870, *one-fourth inch.*
265. No. 6. Elevation, design D. Office use, May 15, 1870, *one-fourth inch.*
266. No. 7. Plan of design D. Office use, May 15, 1870, *one-fourth inch.*
267. No. 8. Plan one-half section and elevation of D. Carpenter, May 25, 1870, *one-half inch.*
268. No. 9. Details of post and parapet. Carpenter, May 25, 1870, *full size.*
269. No. 10. Details, scroll and capital. Carpenter, May 25, 1870, *full size.*
270. No. 11. Details, finial and ridge crest. Carpenter, May 25, 1870, *full size.*
271. No. 12. Bracket to eaves. Carpenter, May 26, 1870, *full size.*
272. No. 13. Details of tracery, front gable. Carpenter, May 26, 1870, *full size.*
273. No. 14. Duplicate of No. 8. Office use, June 4, 1870, *one-half inch.*
274. No. 15. Detail of gate in parapet. Carpenter, June 7, 1870, *one-half inch.*
275. No. 16. Detail of tracery and finial. Carpenter, June 8, 1870, *full size.*
276. No. 17. Diagram plan of site, etc. Engineer D. P. P., June 9, 1870, *one-sixteenth inch.*
277. No. 18. Plan, one-half section and elevation B and C. Carpenter, June 13, 1870, *one-half inch.*

278. No. 19. Duplicate of same. Office use, June 14, 1870, *one-half inch.*
279. No. 20. Details of plinth. Carpenter, June 13, 1870, *full size and one-half inch.*
280. No. 21. Post brackets, design B. Carpenter, June 14, 1870, *full size and one-half inch.*
281. No. 22. Post brackets, design C. Carpenter, June 14, 1870, *one-half and full size.*
282. No. 23. Pediment of D, tracery. Carpenter, June 13, 1870, *one-eighth inch and full size.*
283. No. 24. Details, posts and chains. Carpenter, June 13, 1870, *one-eighth inch and full size.*
284. No. 25. Details, iron music-desks. Iron-founder, June 23, 1870, *one-half inch.*

No. 26. *The ornamental Iron Settees in Public Parks.*—For these I prepared designs, acting under the instructions of Mr. Commissioner Dillon, and somewhat guided in style by the seat brought by him from Paris, and placed in front of the Worth monument in Madison Park. A limited number of these seats have been executed by Messrs. Janes, Kirtland & Co., and are now placed both in the City Hall Park and in Madison square, two of them having been coated with bronze, experimentally, under the process long known in France as the *procés galvano-plastique.* Another design has since been adopted, many of which are now being constructed by the Composite Iron Company. For these first mentioned seats I prepared the following Plans and Working Details:

285. No. 1. Study, design A. Office use, June 29, 1870, *one-quarter inch.*
286. No. 2. Studies, designs B and C. Office use, June 30, 1870, *one-quarter inch.*
287. No. 3. Study, design D (adopted). Office use, July 2, 1870, *one-quarter inch.*
288. No. 4. Design D, front and side elevation. Iron-founder, July 26, 1870, *one-eighth full size.*
289. No. 5. Duplicate of same. Office use, July 26, 1870, *one-eighth full size.*
290. No. 6. Detail of arm-rod, etc. Iron-founder, July 20, 1870, *full size.*
291. No. 7. Duplicate of same. Office use, July 21, 1870, *full size.*

No. 26. *Shields and Badges for Park-keepers' Uniforms.*—For these I prepared four or five different designs, and subsequently an extra shield for Captain and Lieutenant, in harmony with the first design selected and adopted.

They required the following Drawings:

292. No. 1. Study for designs A and B. Office use, June 18, 1870, *full size.*
293. No. 2. Study for design C. Office use, July 6, 1870, *full size.*
294. No. 3. Study, designs D and E. Office use, July 7, 1870, *full size.*
295. No. 4. Working detail of D. Manufacturer, July, 1870, *full size.*
296. No. 5. Design Captain's shield. Manufacturer, October, 1870.

No. 27. *The Posts and Railing for Triangular Park on Canal street.* Pursuant to instructions received through the Engineer-in-Chief, I altered and adapted the old railing and posts to a modern and more suitable design, and prepared the following Drawings:

297. Profile of coping and plinth. Mason, D. P. P., September 3, 1870, *full size.*
298. Detail of iron post. Iron-founder, September 8, 1870, *one inch.*
299. Office duplicate. Office use, September 9, 1870, *one inch.*
300. Detail of same, and railing. Iron-founder, September 8, 1870, *full size.*
301. Duplicate of same. Office use, September 9, 1870, *full size.*

No. 28. *The Watch and Tool Houses on the Battery and Tompkins Square.*—Being requested at the beginning of November by the Vice-President to furnish designs for Park-keepers' houses of shelter on the Public Parks, which should also contain storage places for the workmen's tools, structures that should be to a certain extent ornamental, I prepared Plans which were approved forthwith, and which have just been most creditably carried out by Mr. J. C. Hoe and Messrs. Janes & Kirtland. The following Plans and Detail Working Drawings were provided for these:

302. No. 1. Study of design A. Office use, November 5, 1870, *one-quarter inch.*
303. No. 2. Study of design B. Office use, November 11, 1870, *one-quarter inch.*
304. No. 3. Plan section elevation, design A. Office use, November 9, 1870, *one-quarter inch.*
305. No. 4. Plan section elevation B. Carpenter, November 9, 1870, *one-quarter inch.*
306. No. 5. Duplicate of No. 3. Office use, November 30, 1870, *one-quarter inch.*
307. No. 6. Duplicate of No. 4. Office use, November 30, 1870, *one-quarter inch.*
308. No. 7. Details brackets and sides. Carpenter, November 30, 1870, *full size.*
309. No. 8. Details eaves and cornice. Carpenter, November 30, 1870, *full size.*
310. No. 9. Details chimneys and finials. Iron-founder, December 1, 1870, *one-quarter full size.*

311. No. 10. Details cresting and hinges. Iron-founder, December 2, 1870, *one-quarter full size.*

No. 29. *The Fountain on the Plaza on Fifth avenue, Fifty-eighth and Fifty-ninth streets.*—In conformity with instructions received, both from the Executive Committee and Vice-President, I have prepared two designs for this Fountain-basin. The first it was proposed to execute in the Portland cement, but that idea was, on reflection, abandoned. Subsequently I modified my Design, so as to contain lesser masses, and be lighter altogether in treatment, and in that form modified, the work is now being carried on under contract by the Bigelow Blue-stone Company, in their blue and gray Malden stone.

For the above, the following Plans and Working Details have been prepared:

312. No. 1. Study of first design. Office use, October 6, 1870, *one-eighth and one inch.*
313. No. 2. Duplicate of same modified. Office use, November 22, 1870, *one-eighth and one inch.*
314. No. 3. Working drawing (adopted). Stone-cutter, February 20, 1871, *one-eighth inch and three-fourths inch.*
315. No. 4. Duplicate of same. Office use, April 7, 1871, *one-eighth inch and three-fourths inch.*

No. 30. *The large Fountain on the City Hall Park.*—In December last, in accordance with directions from the Vice-President, I prepared the study of my Design for the above Fountain, using, as my material, granite, a considerable portion of the surface of which will be polished, with candelabra and ornaments of bronze. I aimed at producing an artistic design, rich in effects of color, not regarding the fact that the structure faces the *old* City Hall, but the *new* Post-office, which is to be an elaborate and massive edifice of corresponding granite. The novelty of the design called up a question of its expediency on the ground of expense, but on taking *bona fide*

NEW FOUNTAIN.
CITY HALL PARK.

estimates, the excessiveness of the cost was found to be more ideal than actual, and the work is now being proceeded with by Mr. Hardwick, the proprietor of extensive granite quarries at Quincy, Massachusetts.

So far, in connection with this Fountain, the following Plans and Working Detail Drawings have been issued:

316. No. 1. Study of elevation. Office use, December 8, 1870, *one-eighth inch.*
317. No. 2. General plan of same. Office use, December 9, 1870, *one-eighth inch.*
318. No. 3. Plan for excavation. Mason, D. P. P., November 28, 1870, *one-quarter inch.*
319. No. 4. Duplicate of same. Office use, November 28, 1870, *one-quarter inch.*
320. No. 5. General elevation and plan. Stone-cutter, January 1, 1871, *one-half inch.*
321. No. 6. Details of granite work. Stone-cutter, January 1, 1871, *one-eighth full size.*
322. No. 7. Details of angle of pedestal. Stone-cutter, January 1, 1871, *one-eighth full size.*
323. No. 8. Mason's plans, foundation walls. Mason, D. P. P., April 1, 1871, *one-half inch.*
324. No. 9. Duplicate of same. Office use, April 1, 1871, *one-half inch.*
325. No. 10. Duplicate of No. 5. Office use, April 4, 1871, *one-half inch.*
326. No. 11. Duplicate of No. 6. Office use, April 5, 1871, *one-eighth full size.*
327. No. 12. Duplicate of No. 7. Office use, April 6, 1871, *one-eighth full size.*

Thirdly.—I will proceed to specify the kind and quality of work executed under the heading of

Class C.

No. 31. The *Repair Shops*, in connection with Sheds and Stables on Transverse Road No. 3.—A Design and Plans have already been prepared for these shops, which will accommodate the carpenter, wheelwright, blacksmith, painter, and a supplementary engine-house on the triangular piece of ground west of the Keeper's house of the Croton Department, extending to the rough stone bridge carrying the west drive over transverse road. The work, however, rests in abeyance, as the Engineer-in-Chief is now negotiating through Mr. Tracey, of the Croton Aqueduct Department, to enable us to include

twenty-five or more feet of ground further to the eastward, thereby considerably extending our area of efficiency. Should these negotiations succeed, the existing Plans hitherto prepared will need considerable enlargement.

These Plans are as follows:

328. No. 1. General plan and elevation. Office use, December 22, 1870, *one-sixteenth inch.*
329. No. 2. Working plan and elevation. Mason, C. P., March 5, 1871, *one-quarter inch.*
330. No. 3. Duplicate of same. Office use, April 3, 1871, *one-quarter inch.*

No. 32. *Drinking Fountain for Horses* on Southwest Concourse, Central Park.—This structure, designed and carried out under the auspices of the old Board of Commissioners, was left incomplete; the bronze terminal, so essential to the unity and completeness of the design, was never marked out in detail, or contracted for, at the time the stone-work was executed. That design, as shown in the Eleventh (C. P. C.) Report, page 16, I have now completed, omitting the gaseliers, for which provision is made, so they can be added on at any time after gas shall have been introduced on the Park. I earnestly recommend that this terminal be carried out in pure light bronze.

The Working Details are as follows:

331. No. 1. Elevation of bronze finial. Bronze-worker, April 7, 1871, *one inch.*
332. No. 2. Sections of various parts of above. Bronze-worker, April 7, 1871, *one-quarter full size.*

No. 33. *Cottage for Ladies and Children on the Battery.*—A Design for a Structure affording the above much-needed accommodation has been prepared, and the Working Plan preparatory to a contract got out, as follows:

333. No. 1. Plans and elevations, Designs A and B. Office use, January 17, 1871, *one-eighth inch.*
334. No. 2. Working plan, design B. Carpenter, April 11, 1871, *one-eighth inch.*

No. 34. *The Deer House*, situate on the east meadow at the Central Park.—This may, I suppose, be considered the initiatory step in the proposed fringe of buildings devoted to zoological purposes surrounding the east and west meadow on the Central Park. I have designed, pursuant to instructions received fron the Vice-President, after fully consulting with Mr. William Conklin (who has charge of our animals), as to the requirements of the Red Deer, Antelopes, and Wapiti, which are to be housed therein. We are now proceeding to carry out the second of the two designs prepared, and the necessary Working Plans are in progress. Thus far, they are as follows for the two Designs :

335. No. 1. Plan and elevation A. Office use, March 23, 1871, *one-eighth inch.*
336. No. 2. Plan and elevation, Design B. Office use, March 24, 1871, *one-eighth inch.*

No. 35. *Bridge No. XXIII. on the Central Park*, additions and alterations thereto.—Consequent on the widening of the drive from thirty to forty-five feet, we have to build up a flank wall, topped with a coping and a railing on both sides of the roadway. I propose the same material as the Bridge was originally constructed of, namely, Bigelow blue-stone and brown-stone, from, we believe, Belleville, N. J. The design and contract drawings have been prepared, and estimates are now being taken for the work. I would add that the design and appearance of the Bridge is very much improved by the addition, to which I have given as little of the character of an after-thought as possible.

The following plans so far have been made :

337. No. 1. General elevation, with addition. Office use, April 10, 1871, *one-half inch.*
338. No. 2. One-fourth of plan and various sections. Office use, April 12, 1871, *one-half inch.*

No. 36. *Bridge No. XXVI. on the West drive, Central Park.*—This bridge, the wooden superstructure of which is found to be decaying rapidly, it has been deemed advisable to reconstruct in rough Cyclopean masonry of Park stone, similar to the original substructure. The following Working Drawings have been issued:

339. General study of alteration. Mason, C. P., April, 1871, *one-fourth inch.*
340. Detail of stone work. Mason, C. P., April, 1871, *one-fourth inch.*
341. Detail of iron railing. Iron-founder, April, 1871, *one-fourth inch.*

Fourthly and lastly, I would enumerate the Designs at present before the Vice-President and Executive Committee, which have not as yet been acted upon, and which I comprise under the heading of

Class D.

No. 37. *The Large Casino, or Restaurant, al-fresco,* proposed to be erected on the plateau east of the old reservoir, entral Park:

342. No. 1. General plan and elevation, Design A. Office use, March 1, 1871, *one-sixteenth inch.*
343. No. 2. Elevation, Design B. Office use, March 4, 1871, *one-sixteenth inch.*
344. No. 3. General plan, Design B. Office use, March 4, 1871, *one-sixteenth inch.*
345. No. 4. Elevation, Design C, Swiss. Office use, March 5, 1871, *one-sixteenth inch.*
346. No. 5. Elevation, D, Italian. Office use, March 16, 1871, *one-sixteenth inch.*
347. No. 6. Study in perspective, Design E. Office use, March 20, 1871, *one-sixteenth inch.*
348. No. 7. General plan, Design E. Office use, March 20, 1871, *one-sixteenth inch.*
349. No. 8. Elevation of half design, F. Office use, March 28, 1871, *one-sixteenth inch.*

No. 38. *The Ornamental Clock* to be erected on the oval at south end of Mall, Central Park.

Three Designs have been prepared for the above, as follows:

350. No. 1. Elevation, Design A. Office use, December 13, 1870, *one-half inch.*
351. No. 2. Elevation, Design B. Office use, December 29, 1870, *one-half inch.*
352. No. 3. Plan, Design B. Office use, December 29, 1870, *one-half inch.*

No. 39. *The Shelter* to protect the statue of Washington by Crawford, for which only a Preliminary Study has been prepared for a Structure in glass and iron, roofed with slate, and efficiently protecting the statue, in itself twenty-four feet high.

353. No. 1. General plan, elevation and sections. Office use, March, 1871, *one-sixteenth inch.*

No. 40. Designs for *Ornamental Drinking Fountains* in Public Parks for man and beast.—Having received instructions to prepare designs for the above purpose from the Commissioners, through Mr. Commissioner Dillon, I made three separate studies, two for iron work, to be bronzed by the *Oudry-galvano-plastic* process, and one to be carried out in granite, which I prefer and recommend, both on the score of durability and cleanliness.

For these the following Drawings were prepared:

354. No. 1. Two studies, Design A. Office use, July 1, 1870, *one-eighth full size.*
355. No. 2. Two studies, Design B. Office use, July 5, 1870, *one-eighth full size.*
356. No. 3. Elevation and plan, C. Office use, July 30, 1870, *one-eighth full size.*

No. 41. *Ornamental Inclosure* to the statue of Lincoln, in Union square.—This inclosure, which was first mooted in a meeting of the Board last fall, has been designed, and I propose to carry out the Design in granite and bronze, as material worthy and fitting for a Structure so permanent and monumental in its character. Within the inclosure, and on all four sides of the square pedestal, are podia holding polished Peterhead granite vases, to be kept fresh with living flowers, as a perpetual offering to the object of respect and veneration which they surround.

For this, the following Drawings are prepared:

357. No. 1. Elevation of railing and wall. Office use, January 30, 1871, *one-half inch.*
358. No. 2. General plan of inclosure. Office use, January 31, 1871, *one-half inch.*

No. 42. *The Art Museum*, various Preliminary Studies on the site proposed by former Board. This site having now, as I am informed, been dispensed with, as tending to obstruct too much of the Park surface with buildings, I shall merely record the Drawings prepared, in which I was very much guided, as to plan and arrangement, by what has heretofore been done at South Kensington, in England.

As far as they have gone, the Plans prepared are as follows:

359. No. 1. General block plan. Office use, April, 1870, *fifty feet to one inch.*
360. No. 2. Preliminary study, plan in detail. Office use, May, 1870, *one hundred feet to three inches.*
361. No. 3. Portion of elevation, picture gallery. Office use, May, 1870, *one-quarter inch.*
362. No. 4. The same with basement. Office use, May, 1870, *one-quarter inch.*
363. No. 5. General study for dome. Office use, May, 1870, *one-quarter inch.*

No. 43. *The Merchants' Gate*, at the intersection of Eighth avenue with Fifty-ninth street.—For the Design as intended, I have prepared so far, the following plans:

364. No. 1. General plan of sweep. Office use, April, 1870, *one-quarter inch.*
365. No. 2. Elevation of pier and railing. Office use, May, 1870, *one inch.*
366. No. 3. General elevation developed. Office use, May, 1870, *one-quarter inch.*

No. 44. *The Music Pavilion* for the Battery.—This Design, which was prepared originally with the former, is square on plan and less ornate in character than those on the up-town Parks. The Drawings are as follows:

367. No. 1. General plan, Design A. Office use, May 9, 1870, *one-quarter inch.*
368. No. 2. Elevation, Design A. Office use, May 10, 1870, *one-quarter inch.*

In addition to which, the following full and ample specifications have been prepared for the various above works:

CLASS A.	21 specifications.	CLASS C.	4 specifications.
" B.	7 specifications.	" D.	none.

In recapitulation, therefore, the sum total of the year's work foots up as forty-four (44) separate Structures and Items designed, in progress of construction, or constructed, for which three hundred and sixty-eight (368) Plans, Designs, or Working Drawings have been prepared, some of them exceedingly intricate and elaborate, and in all cases thoroughly well figured, and in addition to the drawings we have prepared thirty-two (32) specifications.

In conclusion, allow me to bear testimony to the zeal, fidelity, and devotion to this Bureau shown by the Superintending Architect, Mr. Julius Munckwitz, whose exertions in attending to such multifarious structures have been unremitting.

In conclusion, further, I would remind you that it was August the 16th before we moved this Bureau to our present offices, and that time was necessarily lost during the intermediate state of things whilst we were vacating Nassau street; that I was four days absent in Washington, where I went accompanied by the late Mr. Pilat, to inspect the conservatory erected in the Botanical Gardens; also, that but three days during the year have been lost through sickness, excepting the two weeks during which Mr. Munckwitz lay prostrate, entirely through over-zeal and care in the discharge of his duties.

I have the honor to subscribe myself, Sir, faithfully and respectfully yours,

JACOB WREY MOULD,

Architect-in-Chief, D. P. P.

REPORT

OF THE

SUPERINTENDENT OF SQUARES AND PLACES.

REPORT OF SUPERINTENDENT OF SQUARES AND PLACES.

City of New York,
Department of Public Parks,
265 Broadway.

Bureau of Squares and Places, April 22, 1871.

Hon. Peter B. Sweeny,

President of Department of Public Parks:

Sir:—The Superintendent of Bureau of Public Squares and Places, in accordance with instructions of the Commissioners of the Department of Public Parks, respectfully submits the following report:

By the by-laws of the Commissioners of the Department of Public Parks, all the Public Squares and Places within the City of New York, with the exception of the Central Park and Mount Morris Square, were placed under the charge and authority of this Bureau.

During the late civil war, most of these Squares and Places were used for a long period for recruiting stations, barracks, and other military purposes, and were consequently much mutilated and their attractions destroyed, in which unsightly condition they were permitted to remain.

Since the induction to office of the present Commissioners of the Department of Public Parks, the work of remodeling and ornamenting the Public Squares and Places is progressing, and, it is presumed, will be completed during the present year.

The enumeration of the Squares and Places under the charge and authority of this Bureau, is twenty-three, viz.:

Battery, nearly completed.
Bowling Green, completed.
City Hall Park, nearly completed.
Five Points Plaza, in course of construction.
Beach Street Park, completed.
Canal " " "
Duane " " "
Washington Square, in course of construction.
Union " " " "
Tompkins " " " "
Cooper Park, completed.
Stuyvesant Squares, in course of construction.
Fourth Avenue Parks, completed.
Broadway and Sixth Avenue, completed.
Reservoir Square, in course of construction.
Abingdon " " " "
Christopher Street Park, " "
High Bridge " " "
Morningside, " " "
Worth Monument Plaza.
Washington " "
Lincoln " "

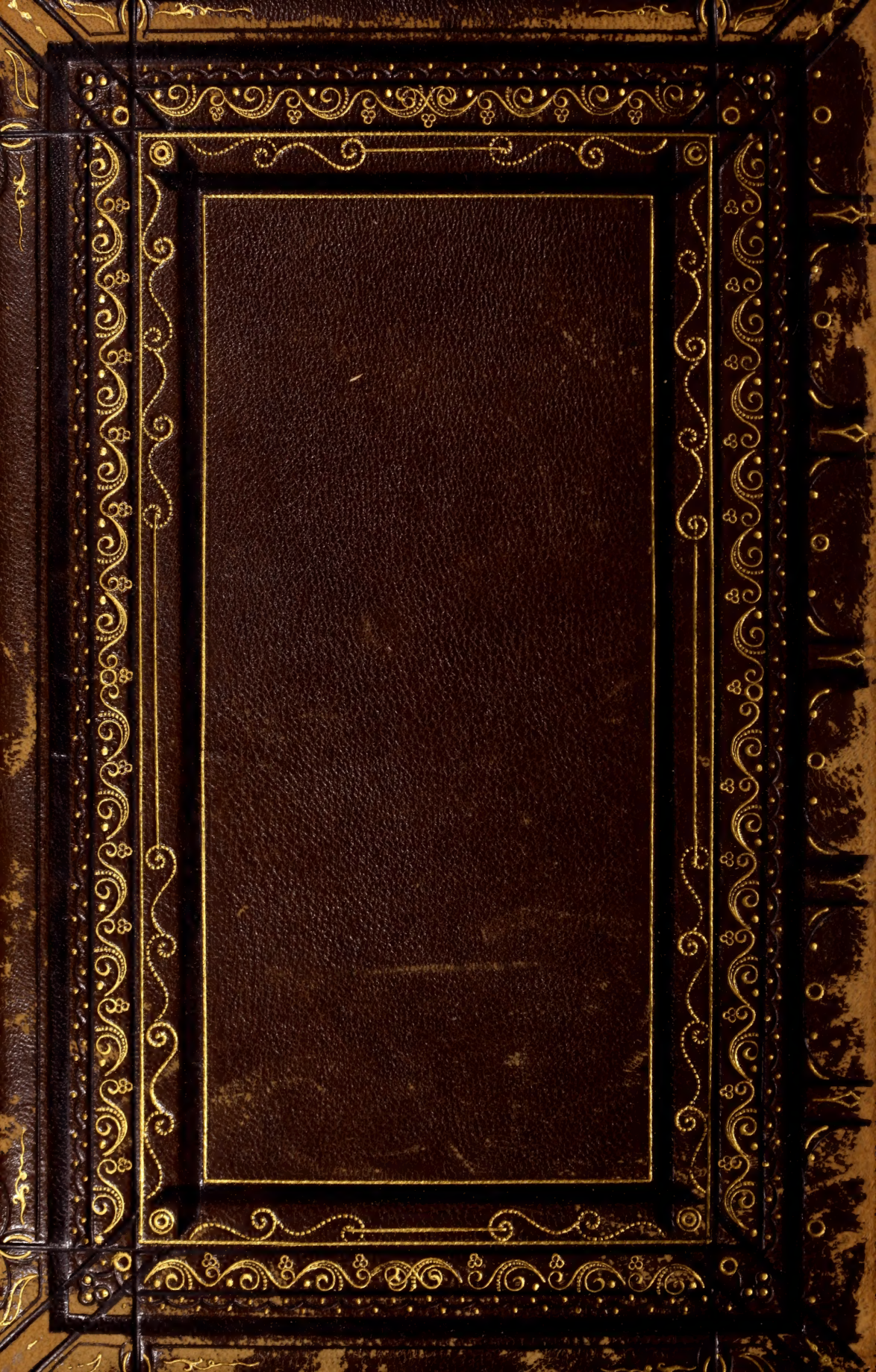
The areas of the foregoing, and also the minutiæ of all

particulars of matters relating to work of construction in said Parks, are embraced in the submitted reports of other bureaus.

The Open-air Concerts of instrumental music provided by the Commissioners for the people of New York in the different Public Squares under this Bureau, were enthusiastically appreciated, and were largely attended by our citizens, the aggregate number during the entire season of 1870 being estimated to exceed 1,000,000.

For the benefit of our citizens, Settees of improved styles, and made of iron, and also Public Conveniences of new invention, have been provided and placed in all the different Squares and Places.

The force maintained and requisite, at present, for the care of, and the preservation of the beauty, neatness, and cleanliness in the Squares and Places, numbers forty.

WM. L. WILEY,

Superintendent of Squares and Places.